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BOMBAY BRANCH
OF THE
ROYAL ASIATIC SOCIETY.
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THE

JOURNAL

OF THE

BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY

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VOL. II.

JULY 1844 TO JULY 1847.

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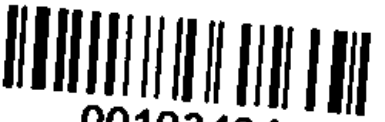
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PREFACE.

Although the objects for which the Bombay Branch of the Royal Asiatic Society was originally instituted, have been steadily kept in view since the publication of the first number of its Journal, and the Editor feels much indebted to those who have enabled him to arrive at the completion of this its second Volume, yet it cannot be observed without regret, that with a field so wide and with so many opportunities open to the Members for extending our knowledge of the Archæology, Philology, Geography, &c. of Western India, Persia, Arabia, Ethiopia and other neighbouring countries, so little comparatively speaking has been accomplished.

It was anxiously hoped, that the literary and scientific communications to the Society on subjects connected with Oriental Research, would have maintained a quarterly issue of its Journal, but experience has proved them to be insufficient.

Much credit however is due to those who have contributed. To Dr. Stevenson and Professor Orlebar, who have most kindly and cordially rendered their aid on Literary and Scientific subjects; to Assistant Surgeon Carter for his papers on the Tribes, Language, and Natural Products, of Southern Arabia; and to the Rev. J. Murray Mitchell, who has enriched the present volume with two interesting and highly useful synoptical accounts of the Parsi Religion, and the system of the Vedas.

In the death of the late Ball Gungadhur Shastree, remarkable among the native community for his great talent and acquirements, the Society has lost a valuable and most useful contributor of *Indian Inscriptions*,—that branch to which Professor Lassen has particularly called the attention of our members, as being the only means of obtaining a clear and authentic knowledge of the early history of this country.

The Editor on taking leave of the Society, in consequence of his return to England, feels it due to state to his learned Associates, that the pleasure he has ever experienced in rendering his services to the Society, as well as the interest he has taken in all that concerns its welfare and the advancement of its objects, will suffer no diminution, although he may no longer be present to assist in its operations.

Bombay ; 30th, November, 1847.

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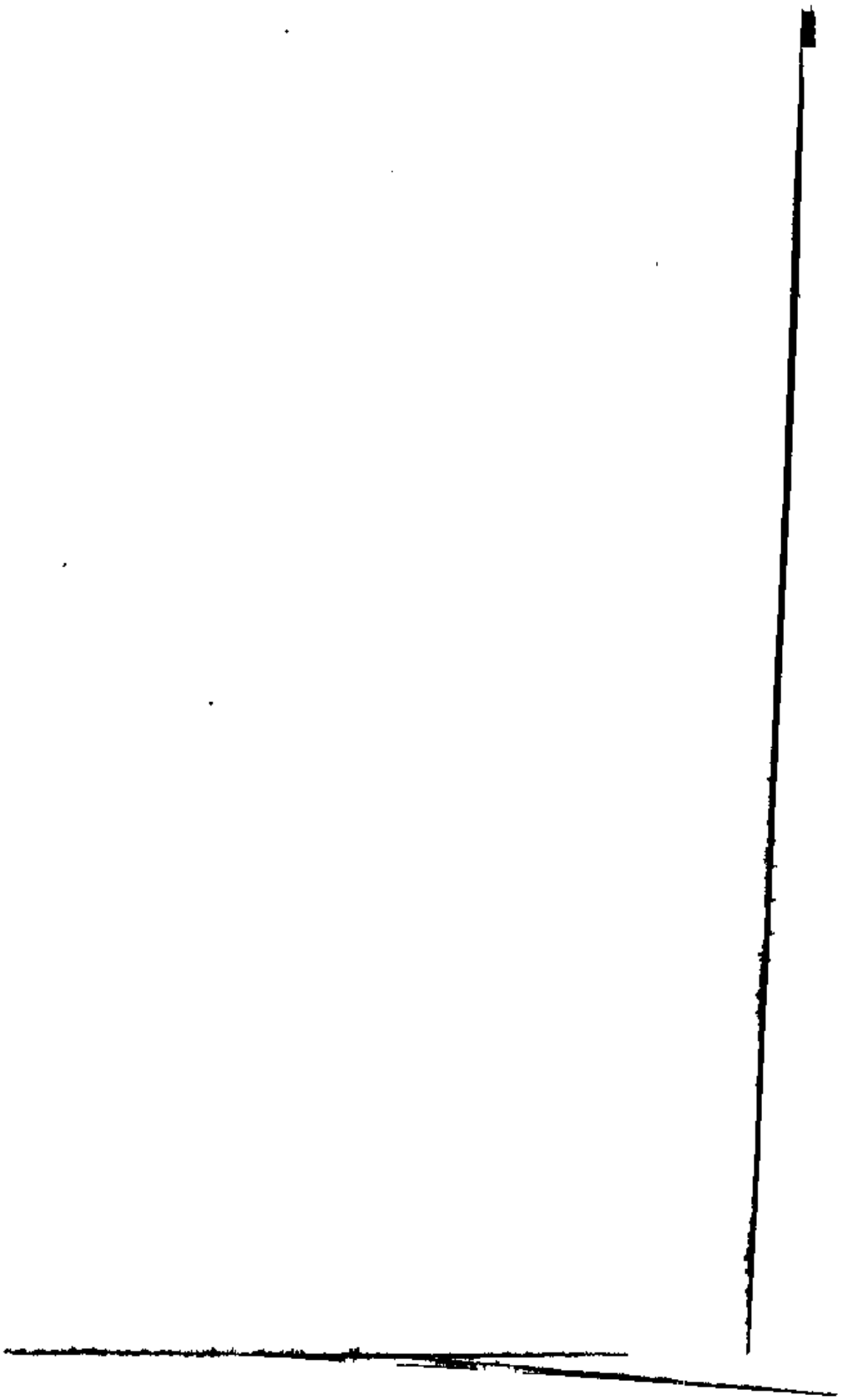
Note.—Opposite to Dr. Stocks' descriptions of the Balsam-trees of Sindh, will be found original drawings of parts of the plants themselves, executed under his superintendence. They scarcely require numbers for reference, each plate containing representations of *old branches* with the flowers, fruit and fascicled leaves on them; and of *young shoots*, on which the leaves are arranged alternately. In the dissections are seen the nut enveloped by its pulp, with the deciduous valves by its side, also sections of the two and the three valved ovary &c. &c.—*Ed.*



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OCTOBER, 1844.

ART. I.—*Two ancient Inscriptions, in the Cave character, and Sanskrit language, which, engraved on Copper plates, are translated into English, by* BALL G. SHASTREE, Esq., *with remarks by the Secretary.*

To JAMES BIRD, Esq., *Secretary to the Bombay Branch R. A. S.*

MY DEAR SIR,—I have now the pleasure of returning the Copper plate, you gave me the other day, with correct transcripts in the original and Balbód characters, as well as a translation of its contents into the English language.

On comparing the names of kings, mentioned in this grant, with Mr. Walter Elliott's genealogy of the *Chalukya* race, as ascertained from the numerous inscriptions collected by that gentleman, (Journal Roy. As. Society, London, No. VII. p. 7,) I am disposed to think that the Prince, *Vishnu Vardhan*, referred to in this grant, must be the grandson of king *Vikrama*, or *Vikramaditya*, the beginning of whose reign is placed in the *Shaka year* 655, or in 733 A. D.; and whose son, the father of our donor, according to both authorities, is of the name of *Kirti Varma*. The antiquity of the document is fully borne out by the nature of the character; which, were there no proof to the contrary, may indeed make it two or three centuries older, as may be easily seen from an inspection of Mr. Prinsep's Table of the ancient Alphabets, in the VIth volume of the Bengal Asiatic Society's Journal. We would certainly be at liberty to identify *Vikrama* with an elder prince of that name, the date of

whose reign is 514 *Shaka*, if it were not for a disagreement in the names that follow.

The language of the grant, unlike that of other writings of this kind, is extremely simple; and the description of the family of the reigning monarch is confined to two of his ancestors. These circumstances may perhaps be attributed to the decline of the power of the *Chalukyas*, which soon afterwards was very much curtailed, if not altogether annihilated, at least, for a considerable length of time.

The inscription is full of orthographical errors, too numerous to be enumerated. There is one particular symbol used, which I have no where met with. I allude to the mark o for ई (ī) instead of ऊ. The medial ऊ (ū) is expressed both by U as well as ए, which latter form, being that of the modern Deva Nagari, may indicate that the Cave character was in a state of transition when the grant was written. The inscription on the seal is literally श्री विदुरस, Shri Bidurasa, which I must leave to your superior judgment to explain. The village of Aland Tirtha, the grant of which is commemorated in the Plate, may be identified with Alandi near Puna, as I know of only one other Aland, but it is situated to the north of the Bhima and not to the south.

Connected with the history of the *Chalukyas*, I send you herewith an Inscription, taken from a Copper plate grant, of the 5th century of the Christian era, which Professor Orlebar presented to your Society in 1841, after carefully comparing it with the original at my request. As confirming the few records of that period found by Mr. Elliott, it is a document of some importance; and as it has not up to this day been published in the Transactions of the Parent Society, to whom I believe, it was transmitted, you may, if you think proper, give it a place in your Journal, along with this additional relic of the *Chalukya* family, which has been brought to light through your exertions.

I am sorry that I could not prevail upon the Thakur, who brought me the Plate, to part with it on any consideration.

Believe me, dear Sir,

Your's most sincerely,

Ball G. Shastree.

7th August, 1844.

No. 1.

Translation of a Copper plate grant of land, found at Sattara, and now in possession of JAMES BIRD, Esq.

Blessing. King *Rana Vikrama* was descended from the family of the *Châlúkyas*; the sons of *Hariti*, of the same Gotra as the descendants of *Manú*, meditators on the feet of *Swami Mahasena* (1); the chain of whose arms was protected by the body of the mothers of the world, and who had been blessed with the Boar signet, by Vishnu on being aroused from his slumbers in the milky ocean. May this king be glorious; who, being himself a good ruler, was gifted with good ministers and good counsellors; who had humbled the pride of all his enemies, and who had acquired great renown by his virtuous deeds in chastising the wicked men of the *Kali Yúg*. His son *Kirti Varma* was a famous protector of the earth, and reigned for a long time, distinguishing himself for worthy actions. His son was as handsome as *Kandarpa* (2). Knowing his duties and having a feeling of gratitude, he equalled Arjuna, as if he was intended by the Creator, like that hero, to remove the vanity of men who support themselves by arms. This prince named *Vishnu Vardhan*, while he had conciliated the attachment of the world, and was in the habit of receiving homage from the crowned heads of numerous humiliated vassals, during his regency (3), bestowed formally, (pouring water, &c.) on the 15th Kartika at Kummarathya, a village called *Aland Tirtha*, situated to the south of the Bhima and to the north of the free hold called Anopalwa, upon the sons of Lakshumana Swami of the *Kaushika Gotra*, (the descendants of Viswamitra,) who had penetrated through the Vedas with all their branches—to Achala Swami, Deva Swami, Aditya Swami, Nagkumara with all their sons, grandsons, &c. This grant is made to support the performance of *Vaishwadeva*, *Agnihotra*, and other ceremonies, with the view of securing virtue to the donor himself and his parents, and is to last as long as the sun, the moon, and the earth exist. Let it be known to all the authorities on the frontier, our

(1) The son of Mahadeva, usually called Kártikeya, and Commander-in-Chief of the celestial armies.

(2) The god of love.

(3) This passage is susceptible of a different interpretation. It may mean the "Grant is made by the regent of Vishnu Sharma, named Vishnu Sidhi."

vassals, heads and great men of the place, &c. that this village is not to be entered into by troops of the state or of persons living on usury. Knowing that the grant is lawful, and that the duration of this life is as transient as the waves of the sea agitated by a gale, the same should not be resumed. Whoever, having his sense obscured by the mist of ignorance, should interrupt our grant or approve of its being interrupted, shall be guilty of the five great sins. As Vyasa, the expounder of the Vedas, says; He who makes a grant of land, lives 60,000 years in heaven; whoever resumes it, or approves of its resumption, is doomed to reside in hell for an equal length of time. Sagara and many other kings, &c. who make grants of land, do not gain so much merit as those who protect the grants of others. O king Yudhishthira! maintain with care all the former grants of land. O good king, the preservation of a grant is a more virtuous act than the giving of it. A man, though he may be on the verge of death, should never think of depriving a Brahman of his estate; for what is burned by fire springs up again, but what is burned by a Brahman's curse never revives. Whoever seizes the land, &c. Those who resume grants of land become black serpents in the hollows of trees in the arid deserts of the Vindhya. This edict is written in the 8th year of the king.

No. 2.

Translation of an Inscription of a Copper plate grant, belonging to a Thákur of the name of NARSU BHALA, *of Nand'gám in the Northern Konkan.* 1841.

Peace. Glory be to the Boar (1), in whom Vishnu was made manifest, who agitated the ocean, and bore the earth on the tip of his uplifted right tusk. *Shri Kirti Varma Rája*, whose body became pure as the Avabhritha bath of the Ashwamedha sacrifice, adorned the family of the prosperous *Chalukyas*, of the same Gotra (2) as the descendants of Manú; who are praised by the whole world; the sons of Háriti (3); brought up by seven

(1) The third incarnation of Vishnú for the recovery of the earth from the waters.

(2) A distinctive appellation of Bráhman and Kshatriya families, denoting their descent from particular Rishis.

(3) Probably some local goddess, worshipped by the family.

Plate II

Inscription in the Cave Character No. 2.

[illegible]

Hamilton's Lith.

Seal

mothers, who were even as the seven mothers of the world (4); who, through the protection of Kártikeya, gained a succession of blessings; and who, under the eye of the Boar signet, obtained through the favour of the god Narayan, subjugated all the kings of the earth. His son was *Shri Palakeshi Vallabha*, whose lotus-like feet were touched by the crowns of many hundred kings; whose firmness was as that of the mountains Merú, Malaya, and Mandara, whose whole army of infantry, cavalry, chariots, and elephants, was increasing day by day; who on his noble horse Kanta Chitra (5) reconquered his own dominions, and (afterwards) the three kingdoms of *Chera*, *Chola*, and *Pandya*; who gained a new title by the defeat of *Shriharsha*, lord of the northern countries; who ever meditated upon the feet of *Shri Nága Vardhan*, and was an eminent follower of Mahádeva. His younger brother *Jaya Sinha*, the supporter of the earth, subdued all his rivals. His son, the prop of the three (6) worlds, *Raja Shri Nága Vardhan*, informs all the present and future kings:—Be it known to you that at the request of *Ballám Thakár*, we have assigned (pouring water &c.) for the support of the holy inhabitants of Balegram, and in furtherance of the Guggul worship of *Kapaleshwar*, the said village, which is situated on the boundaries of Goparashtra, with its public buildings, and appurtenances, with the quarters of the impost and the military; (7) that (the glory of) our father and mother may endure as long as the sun, the moon, the sea, and the earth exist, and that our own virtue and fame may be promoted. May then this our grant be respected and observed by our descendants, or other future kings, remembering that life is as transient as the clouds of November. According to the saying of the holy Vyasa, "Sagar and many other kings have enjoyed the earth, whoever may be the master of the earth, this is the fruit thereof. Whoever resumes the land which

(4) Seven female deities well known in the Hindú mythology as Brahmi, Maheshwari, &c. the energies of Brahma and other gods.

(5) कंटचित्राख्य is erroneously written कंटाचत्राख्य.

(6) Here we have नृभुवन, instead of त्रिभुवन.

(7) This was the sense that the passage appeared to me to convey, when I originally translated the Inscription. I have been however satisfied, that it means "the village is not to be entered into by the troops and followers of the king."

either he himself or others have given, becomes a worm, doomed to pass sixty thousand (8) years in filth."

Remarks on the foregoing Inscription.

1.—The Copper plate, of which a copy and an English translation are herewith submitted to the Society, consists of two pieces 7 inches by 5, connected by two rings, one of which bears a seal, which is exactly represented in the fac-simile. It belongs to Narsu Bhalá, a Thakur, originally an inhabitant and a Watandár of Kavaṇáí, in the valley of Trimbakeshwar, but now living at Nándgaon in the Northern Konkan. His family has been in possession of it from time immemorial, and believing that it contained some grant to his ancestors, he was induced to send it to me to be decyphered.

2.—By the help of Mr. Prinsep's table of the Indian Alphabets, I succeeded in reading the whole of the inscription without much difficulty. The character in which it is written will be found to bear a close resemblance to that of the Allahabad Pillar, which, according to the Journal of the Bengal Asiatic Society for March 1838, belongs to the 5th century of the Christian era.

3.—The Plate bears no date, nor makes any mention of the place where the deed was written; but it will be found that the grant was made by Núga Vardhan, the nephew of Pulakeshi, the most mighty of the well known Chalukya race of Kallian (in the Dekhan), on whose history much light has already been thrown by the elaborate researches of Mr. Walter Elliott, of the Madras Civil Service. (9) If according to the Copper deed in the possession of Major Jervis, quoted in Mr. Elliott's paper, Pulakeshi reigned in the year 411 of Shalivahana, the Inscription now submitted cannot be more than a few years later than that period, a result which remarkably verifies what is stated as probable in the preceding paragraph.

4.—On comparing the present Inscription with one that accompanies Mr. Elliott's paper, the fact that first strikes notice is the great similarity of language. Both the documents begin with the same invocation to

(8) The word वर्ष, a year, is spelled वरिष.

(9) See Mr. Elliott's Essay on the subject p. 8. R. A. Society's Journal for May 1837.

Varáha, and designate the Chalukya family as "Manavyasa Gotra," "the children of Hariti," "supported by the seven mothers," and as having subdued all their enemies in an instant by the boar signet obtained from the favour of Bhagván Naráyan." An indubitable proof of the identity of the king Pulakeshi, mentioned in both grants, is furnished by the allusion to his horse "Kantha Chitra," and the performance of the "Ashwamedha" sacrifice, which from the amount of its expense and the difficulty of its conditions, (of which the exaction of tribute from all the contemporary sovereigns is the principal one,) has not been undertaken by many modern princes. This king, according to Mr. Elliott's genealogical table, is the son of Rána Raja or Rája Sinha, while according to the Inscription before us, he is the son of Kirti Varma. There is, however, no real contradiction between the two accounts; for as the name Rája Sinha occurs in one place according to Mr. Elliott, and he regards it as doubtful, we may suppose it was a mere title of honour like Rána Rája, and that Kártik Varma is the proper name of this king. It will be seen that the younger brother of Pulakeshi bears the name of Jaya Sinha, the same as that of his grandfather, who may be supposed to be the founder of the Chalukya(10) dynasty in the Dekhan. Thus the Copper plate now brought to light, supplies us with three additional names of the Chalukya kings: viz. Kirti Varma, Jaya Sinha, and Nága Vardhan, the father, the younger brother, and the nephew of Pulakeshi.

5.—With regard to the position of the "Gopa Rashtra," on the frontiers of which "Balegrama" is said to have been situated, we have some ground on which to hazard a conjecture. A tradition exists that near the village of Anjan Niri, about five miles from Trimbakeshwar, where extensive ruins of a town and a strong fort are still to be seen, there formerly stood the capital of the *Gaoli* or Cowherd kings. We may therefore suppose that the valley of Nashik was called Goparashtir in the time of the Chalukya kings. This hypothesis is further supported by the site of the original residence of the Thakur's family, where it is reasonable to suppose that the grant must have been found. (11)

6.—On asking Narsú Bhálá whether there was any tradition current

(10) Cháluka is a common family name among the Marathas.

(11) Balegram near Yavlé, may be said to be situated on the frontiers of this Goparashtra, but it would require a better proof to identify it positively with the village mentioned in the grant.

in his family or in his tribe respecting Ballam Thákur, at whose request the village is said to have been granted, I could obtain no information. The mention of his name, however, on so old a document proves, that the Thakurs formed a portion of the original inhabitants of the Dekhan; and some of them possessed great influence with the reigning sovereigns of the time.

7.—In conclusion I have only to remark that the language in which the deed is written is elegant, but simple and unaffected; and is evidently the production of a period anterior to that when the taste of the Hindus was vitiated, and they became fond of a bombastic style, abounding in laboured rhymes, far-fetched metaphors, and childish play upon words. The few errors, which occur principally in the spelling, are marked on the margin of the translation.

8.—I have already said that the character of this grant is nearly the same as that of the Allahabad Pillar. None of the initial vowels occur, with the exception of उ (u); the medials are more nearly allied to those of the Gujarat Plates of the 4th Century than of the Allahabad Inscription; the only difference being that ई (i) is written ई instead of ई; and ए (e) and ऐ (ai) are joined as in modern Bálbudh, and not as in Bengali to which the corresponding letters in the Gujarat Plates are alike. Among the consonants I notice some dissimilarity in the following letters:—

	च	थ	ब	म	ल	स	श	श्री
Allahabád Inscription.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
The Nandagám.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

I may observe that म and स of the Plate exactly correspond to those in the Gujarat Plates. It is worthy of notice that the letter ण (n) occurs in two distinct forms [illegible] and [illegible]. The former of these is that of the Allahabad Pillar, and the latter of the Kutila Inscription from Barelly of the year 992 A. D. The first form however is found only in composition.

Additional remarks on the two preceding Inscriptions, by the Secretary.

The earliest records of the Hindu social system, contained in the *Ramayana*, *Mahabharata*, and *Manu*, confirm the uniform traditions of the people, that Bengal, Orissa, and the whole of the Dekhan, south

of the *Nermada* river, were about the beginning of the Christian era inhabited by outcaste and barbarous tribes, similar to the people called by Pliny *Calingæ*, or *Parthialæ*; who inhabited the sea coast, at the summit of the bay of Bengal, from point Godaveri to cape Negrais. The ascertained independent origin of the primitive words of the *Tamul* language, which are not derived from *Sanskrit*, afford strong confirmatory evidence of the comparatively recent amalgamation of these tribes with the present Hindu state, and that they were converted to the Brahmanical system, and from barbarity, by an enlightened and civilized people from the North. The numerous inscriptions, on copper and on stone, which have been arranged and commented on, with great research, by Mr. Walter Elliott, of the Madras Civil Service, supply additional proofs, relative to this subject; and clearly indicate that the *Brahmans* of the North, who introduced the foreign faith and language, were accompanied by a warlike race of *Kshatriyas*; who, from their devotion to the worship of fire, and the ceremonial observances enjoined by the *Vedas*, were denominated *Agnikulas*, and subsequently *Rajputs*. The inscriptions here translated, relative to this stage of the Hindu history of the South, are of considerable interest; and illustrate the origin of the Rajput family of the *Chalukyas*, who ruled over *Kuntala Desha*, in the Dekhan, of which the capital was Kalliani.

In an inscription, engraved on copper, in a very ancient type of the Purvada Hallá Kanara character, and in the Sanskrit language, dated Shaka 411, (A. D. 490),* the *Chalukyas*, are said to be descended from *Manu*, by the lineage of *Harita*;† who, according to the *Vishnu Purana*, was one of the sons of the *Kshatriya Viswamitra*, who obtained Brahmanhood through devotion; and from whom the *Gotra*, or family of the *Kaushika Brahmans* derive their origin. According to the inscription just mentioned, and in the possession of Major T. B. Jervis of the Bombay Engineers, the earliest member of the *Chalukya family*, cotemporary with the date of the grant, A. D. 490, was *Pulakeshi*, who conquered the South, and subdued the kingdoms of *Chera*, *Chola*, and *Pandya*, or Mysore, Tanjore, and Madura. He is mentioned in Nu-

* See Journal of the Royal Asiatic Society, London, volume V. p. 243.

† According to the Vishnu Purana the *Haritas* are classes of gods belonging to the *twelfth Manwantara*; but in the preceding Inscriptions the name is feminine *Hariti*, who among Buddhas is a *Yakshana*, or female demon.

2 of the present Inscriptions; and seems to have been preceded by ancestors in the North; who came from the Bauddha capital of *Saveethipura*, thought to be the same with with *Kosala*, or Oude. It is mentioned in the Ceylon Bauddha annals; and is erroneously called *Watapipura*, in Mr. Elliott's Ye-ur inscription.

The *Vishnu Vardhan*, No 1 of the Inscriptions now translated, was probably the grandson of *Pulakeshi*, by his son *Kirti Varma*; and if so, his date, ascertained from other inscriptions, would place the present Copper plate grant, about the beginning of the sixth century A. D.

The Chalukyas generally profess themselves of lunar origin, and may do so probably from deriving their title from one of the four classes of Bauddha followers, called *Chailaka*: but they must have subsequently adopted the ceremonial faith of the *Vedas*, and *Agnikulas* or worshippers of fire: as *Kirti Varma Raja* is said, by inscription No. 2, to have performed the *Ashwamedha* sacrifice. Their signet of the *Varaha*, or Boar being the third incarnation of *Vishnu*, for the elevation of the earth, submerged by the waters, and supposed by Professor H. Wilson, to be a type of the ritual of the *Vedas*, may have been adopted by the *Chalukyas*, on their conversion from Bauddha principles to the orthodox faith of the Brahmans. In both inscriptions *Kartikeya*, or the *Hindu Mars*, is the special object of reverence by the *Chalukyas*, indicating their warlike character, and probably Indo-Scythic origin.

No. 1. Transcript in Devanagri.

स्वस्तिस्वामिमहासेनपादानुध्यातानांमानव्यसगोत्राणांहारीतीपुत्राणां मातृगणप्रसादपरिरक्षितभुजार्गलानांक्षीरोदधिशयनसुप्रोत्थितप्रसादपरिलब्धवराहलांछनानांचलिक्यानांवंशसंभूतः शक्तित्रयसंपन्नः ॥ जयातिरणाविक्रमनृपोनिरस्तरिपुनृपतिश्रीर्यमदरागः ॥ कलियुगखलनिर्मथनेसत्याश्रयभावितश्चरितैः॥ अभवत्तस्यसकीर्तिकीर्तिवर्मास्थिरस्थितिः॥ सुतःसुचरितापारः कृतकृत्यः पतिः क्षितेः ॥ तस्यपुत्रोमहातेजाकंदर्पइवमूर्तिमान् ॥ धर्मश्चकृतशश्चपार्थतुल्यपराक्रमः॥अभिमानमिवोर्त्तुंनराणांशस्त्रधारिणां

विधात्राविहितेलोकेसचबीभत्सुरेवच ॥ तेनअनेकसामंतप्रणतमुकुटचूडा
मणिनिघृष्टचरणारविंदेनसकलमहीमंडलतिलकभूतेनश्रीपृथिवीवल्लभवि-
ष्णुवर्धनयुवराजविषयसिद्धिनाकुरुमरथ्यावस्थितेनमातापित्रोरात्म नश्चपु-
ण्यावाप्तयेकार्तिकपौर्णमास्यांवेदवेदांगपारगानां ॥ घृतकौशिकसगोत्रा-
णांविश्वामित्रव (घृत) लक्ष्मणस्वामिपुत्राणांअचलस्वामिवेदस्वामिदेवस्वामि
आदित्यस्वामिनागकुमारसहितानांपुत्रपौत्रादीनामव्यात्संगेनाचंद्रार्केक्षि-
तिस्थितिसमकालंबलिचरुवैश्वदेवाग्निहोत्रहवनपंचमहायज्ञअर्पणार्थम्श्री -
निलयभोगोश्रणोपल्वायाहारस्योत्तरतः भीमरथीदक्षिणतटेअलंदतीर्थना
मग्रामोविधिवदुदकपूर्वंदत्तः ॥ विदितमस्तुसर्वेषांपर्यंतविषयपतिसामंतग्रा
मभोगीकमहत्तरादीनांआचाटभटकुसीदादीनामप्रवेश्य : सर्वादानविभु-
(शु) ध्येयवगम्यचलपवनप्रेरितोदधिजलतरंगचंचलंजीवलोकमनुप्रेक्ष्य-
(प्य) तस्यात्लोपोनकार्यः ॥ योवाज्ञानतिमिरपटलावृतमतिरा (दा)
छिद्यदा (रा) छिद्यमानंयोवानुमोदेत्सपंचभिर्महापातकैः संयुक्तोभविष्य
तीत्युक्तंचभगवतावेदव्यासेनव्यासेन ॥ षष्टिवर्षसहस्राणिस्वर्गेतिष्ठतिभूमि-
दः ॥ आच्छेत्ताचानुमंताचतान्येवनरकेवसेत् ॥ बहुभिर्वसुधाभुक्ताराज-
भिस्सगरादिभिः ॥ यस्ययस्ययदाभूमिस्तस्यतस्यतदाफलंतादृक्पुण्यंनदा-
तरंजापतेनोधराभुजां ॥ भुवमन्यप्रतिष्ठात्य (प्य) यादृग्भवतिरक्षतांपूर्वद
त्तांद्विजातिभ्योयत्नाद्रक्षयुधिष्ठिर॥ महींमहिमतांश्रेष्ठादानात्श्रेयोनुपालनं॥
ब्रह्मस्वेमामतिंकुर्यात्प्राणैःकंठगतैरपि ॥ अग्निदग्धानिरोहंतिब्रह्मदग्धंनरो-
हति ॥ स्वदत्तांपरदत्तांवायोहरेतवसुंधरां॥ षष्टिवर्षसहस्राणिकुंभीपाकेपच
्यते ॥ विंध्याटवीष्वतोयासुशुष्ककोटरवासिनः ॥ कृष्णाहयोभिजायंते
भूमिदानापहारिणः श्रीमहाराजस्यप्रवर्धमानसंवत्सरेअष्टमेशासनंलि-
खितमिति ॥

No. 2. Transcript in Devanagri.

स्वस्ति जयत्याविष्कृतंविष्णोर्वाराहंक्षोभिताण्र्णवं। दक्षिणोन्नतदंष्ट्राग्रवि
श्रान्तभुवनंवपुः

श्रीमतांसकलभुवनसंस्तूयमानमानव्यसगोत्राणांहारीतीपुत्राणांसप्तलोक
मातृभिःसप्तमातृभिरभिवर्धितानांकार्त्तिकेयपरिरक्षणावाप्तकल्याणपरंपरा
णांभगवन्नारायणप्रसादसमासादितवराहलाञ्छने क्षणक्षणवशीकृताशेष
महीभृतांचालुक्यानांकुलमलंकरिष्णोरश्वमेधावभृथस्नानपवित्रीकृतगात्र
स्यसत्याश्रयश्रीकीर्त्तिवर्म्मराजस्यात्मजोनेकनरपतिशतमुकुटतटकोटिघृष्ट
चरणारविंदोमेरुमलयमन्दरसमानधैर्योहरहरभिवर्धमानवरकरिरथतुरगप
दातिबलोमनोजवैककंठचित्रारव्यःप्रवरतुरंगमेनोपार्जितस्वराज्यविजितचे
रचोलपाण्ड्यक्रमागतराज्यत्रयःश्रीमदुत्तरापथाधिपतिश्रीहर्षपराजयोपल
ब्धापरनामधेयः श्रीनागवर्धनपादानुध्यातपरममाहेश्वरःश्रीपुलकेशिवल्लभः
तस्यानुजोभ्राताविजितारिसकलपक्षोधराश्रयःश्रीजयसिङ्घवर्मराजस्तस्य
सूनुःतृभुवनाश्रयश्रीनागवर्धनराजः सर्वानेवागामिवर्त्तमानभविष्यांश्चनरप
तीन्समनुदर्शयत्यस्तुवः संविदितंयथास्माभिर्गोपराष्ट्रविषयांतपातिबलेग्राम
सेङ्गसपरिकरसचाटभटप्रवेश्यसुचंद्रार्कार्णवक्षितिस्थिति समकालीन
मातापित्रोरुद्दिश्यात्मनश्चविपुलपुण्ययशोभिवृध्यर्थंबलाम्मठक्करविज्ञाप्तिक
याकापालेश्वरस्यगुग्गुलपूजानिमित्ततन्निवासिमहाव्रतिभ्य उपभोगायसलि
लपूर्वकंप्रतिपादितस्तदस्मद्वंश्यैरन्यैर्वागामिनृपतिभिः शरदभ्रचंचलंजीवि
तमाकलय्यायमस्मद्दायोनुमंतव्यः प्रतिपालयितव्यश्चेत्युक्तंभगवताव्यासेन
बहुभिर्वसुधाभुक्ताराजभिस्सगरादिभिः यस्ययस्ययदाभूमिस्तस्यतस्यतदा
फलमिति। स्वदत्तांपरदत्तांवायोहरेतवसुंधरांषष्टिवर्षसहस्राणिविष्ठायांजाय
तेकृमिः।

Plate III.

From a Drawing by Lieut. Thorne

Hampton's Lith. Bldg.

TEMPLE OF SOMNATH.

ART. II.—*An Account of the temple of Somnath, translated from the Persian of the Appendix to the Mirat Ahmedi,* By JAMES BIRD, Esq.: *to which is added a translation, from Sanskrit into English, of an Inscription at Pattan Somnath, relative to the restoration of the temple in Samvat* 1272, *A. D.* 1215. By W. H. WATHEN, Esq.

Recent events, and the proposed restoration to the ancient temple of *Somnath* of the gates brought from Ghazna, said to have been originally part of it, have given this place a modern notoriety little inferior to its former celebrity. If indeed these gates formed part of the ancient temple, it may be doubted whether they ever belonged to the now existing ruins of the building at *Pattan Somnath*; where the shrine, according to the excellent account of it contained in the Appendix to the *Mirat Ahmedi*, was several times destroyed and restored. Agreeably to the Sanskrit inscription, translated in the sequel, the hall of this temple was rebuilt sometime after its destruction by Mahmúd of Ghazna, and a fresh image, or *lingum*, installed in the shrine so late as A. D. 1215, or almost two hundred years after the original one had been destroyed by that celebrated conqueror. The only modern account of this building, which we have on record, is that given by the late Sir Alexander Burnes, which was published in the Journal of the Royal Asiatic Society.* He thus describes the ruins:—"The great temple of Somnath stands on a rising ground on the north-west side of Pattan, inside the walls, and is only separated by them from the sea. It may be seen from a distance of twenty five miles. It is a massy stone building, evidently of some antiquity. Unlike Hindú temples generally, it consists of three domes, the first of which forms the roof of the entrance, the second is the interior of the temple, the third was the "sanctum sanctorum," wherein were deposited the riches of Hindú devotion. The two external domes are diminutive: the central one has an elevation of more than thirty feet, tapering to the summit in fourteen steps, and is about forty feet in diameter. It is perfect, but the images which have once adorned both the interior and exterior of the building, are mutilated, and the black polished stones which formed its floor have been removed by

* Vol. v. page 103

the citizens for less pious purposes. Every thing in the vicinity of Pattan corroborates its age, and confirms the relations of the people."

The *Mirat Ahmedi's* account of this celebrated temple, being interesting, is here appended as translated from the Persian.

Somnath, the greatest and most celebrated of temples to be met with, is visited by the worshippers of idols from the four quarters of Hindustan. This also is the name of the city situated on the shore of the sea of *Oman*, and in the district of *Sorath*, where there is a strong fortress, now named *Pattan Deo*, and otherwise called *Prabhas Pattan*, because in that country the *Khetri* tribe is known by the name of *Prabhas*.* At this time the place of the idol is in a great measure destroyed, but it is celebrated in every country, and among the Hindús is considered the oldest of the temples: wherefore travellers and strangers have noticed it in their books both in prose and verse. The author of the *Haft Iklim* relates that there were many golden images in this temple, and that they called the greatest of them *Manat* †: but the general opinion regarding this matter, is that *Manat* was not one of the idols worshipped by the Brahmans, although it be said that this deity, before the time of *Krishna* now four thousand years, was worshipped by the Brahmans. *Mahmud Ghazi* of Ghazna, however, led by inevitable destiny, having in the year of the Hejirah 416, A. D. 1020, come into Gujarat from Ghazna, in order to throw down and destroy the idols of this temple, laid siege to it. So obstinate was the contest on both sides, during the period of the siege, that for one day no advantage was gained by the Mahomedans, but having prepared next day the usual war machines, they bravely exerted themselves in battle, while the people of Somnath crowded to the temple; from whence, after having embraced the idol, and sought its assistance, they with loud wailings rushed out and fought until more than fifty thousand persons were slain, and the fortress was yielded up. The Sultan entering the temple

* *Prabhasa*, in Sanskrit, means light or radiance, and was applied as an appellation of the *Saiva linga*, which under the name of Somnath, represented *Siva* or *Mahadeva* at Pattan Somnath; which is called, in the *Vishnu Purana*, *Prabhasa*. The Mahatmyam, or legend of the temple, said to be a part of the *Skanda Purana*, is entitled *Prabhasa Kshetra Mahatmyam*, and relates the origin of the temple—that *Soma*, or the moon, who had lost his lustre by the imprecation of Daksha, having propitiated *Siva*, and erected to the honor of this deity a splendid *lingam*, regained the favor of *Siva*, who conferred on the pagoda the name of *Somnatha*. The account, which the author of the *Mirat Ahmedi* here gives for the origin of the name, is not therefore correct.

† The name of one of the three idols, which, during the times of idolatry in Arabia, were worshipped in the temple of Mekka.

beheld a place, of great breath and length, containing fifty pillars adorned with all kinds of jewels; within which he found the idol *Menat*, in height about five cubits, and partly buried in the earth. The Sultan on beholding this broke it to pieces with the baton he had in his hand, and afterwards carrying the pieces to Ghazna strewed them in front of the great mosque where they remain to this day. Jewels of great value fell from the belly of the idol; but this story in detail is related in the fourth volume of the *Rauzat-us-Safa*, (a work of seven volumes,) and in other entertaining books. In fine, the people of India are only in part acquainted with the religious rites of Somnath; which they washed daily with fresh water brought from the Ganges, and conveyed from station to station, by persons placed for the purpose, and from a distance exceeding two hundred *farsakh*. Moreover more than a thousand populous villages were bequeathed for the use of this temple; more than twenty thousand Brahmans were employed in the ceremonies of its worship, and who had so arranged for commencing such, that they began their devotions whenever a golden chain, which was suspended in the temple, was set in motion. Three hundred persons were ready to shave the heads of the devotees who frequented the temple to worship the idols, and five hundred dancing women were also attendant on them. Many of the princes of India devoted their daughters to the service of this temple, and of Somnath; and whatever wealth was obtained by the treasury of Sultan Mahmud, not less than a million of gold coins were carried away.

It must be generally known that whatever is evident in the old books of the Brahmans is collected at the temple of the idols, and they therefore say that the original object of worship in the temple of Somnath was a *linga*, which represents the god *Mahadeva*. There were formerly twelve *lingas* named *jot lingas*, the first word of which signifies splendour; and is one of the many names given to *Mahadeva*, such as Bhimnath, Gopinath, Somnath, &c.: but in their estimation the original title of *jot linga* is the greatest of all, regarding which they tell many wonderful stories, and that there are eleven other *lingas* in the neighbouring countries. On a certain fixed day crowds of Hindus from every distant quarter assemble here to worship, because in their belief Somnath is a holy place and contains the *linga* of radiance, besides many golden and guilded images, which have been taken away: and relative to what they relate regarding the object of worship in the original temple being buried five cubits in the earth, it appears to have been a *linga*, which they set up in this manner; and every *linga*, except the *jot linga*, one of the twelve, which is made of cut stone, is named and worshipped under one of the appellations of *Mahadeva*.

In the year of the Hejirah 666, A. D. 1296, when *Alagh Khan*, agreeable to the orders of *Allah-ud-Khiljí*, king of Delhi, conquered the province of Gujarat, he carried an army against Somnath, and destroyed the linga

which had been set up after the time of Mahmud of Ghazna; and which being restored afresh was popularly worshipped. Wherefore he destroyed the stone and forwarded many articles of wealth to Delhi.

In the year of the Hejirah 790, A. D. 1387, when Zafar-Khan had erected the standard of independence in Gujarat, the Brahmans having cut and set up another *linga*, he went and destroyed it; and again in the time of Khuld Makan it was a third time destroyed. At the present day the remains of the temple are a few columns, outside the citadel of Pattan Deo, on the banks of the river Sirsuti.

A letter from Purani Ramdat Krishna Datt, at Prabhas Pattan, (Somnath) to Lieutenant Colonel Tod, dated the 15th of the first Chaitra Shud, Samvat, 1879. (26th March 1823).

Sir,—Further, you were pleased to commission me to make a copy of the Slokes, (verses) on the pillar near the Kazi's house, and to send it to you. I have therefore made a copy, which cost me much trouble; because, in many parts the letters are not legible, as known to you. I succeeded, however, in copying this inscription after a labour of thirty-two days; during which time I and my son jointly, with great difficulty decyphered the letters and arranged them. I long ago sent you this copy, through the medium of *Dada Raghupant* and *Sheth Hausraj*; along with a letter to you, one to *Baba Maratha*, and one paper relating to this copy (of the inscription); but I know not whether these papers ever reached, as no answer has been received. Having made another copy I now transmit it enclosed; and on its arrival you will oblige me by writing an acknowledgment of its receipt: for a letter from you, Sir, would gratify me greatly; and my trouble will be rewarded by the pleasure of receiving such. This is my wish: therefore being kind, favor me with a letter.

Translation of an Inscription at Pattan Somnath in Khatyawar. By W. H. Watren, Esq.

I adore that eternal Being who is the source of the twenty-five principles.*

* The allusion to the twenty-five principles shews the connexion of this inscription with the doctrines of the Sankhya philosophy, both schools of which, *atheistical* and *theistical*, acknowledge three sources of evidence; namely perception, inference and affirmation: from which we derive acquaintance with twenty-five principles; and of these *Nature*, *Mulaprakriti*, the root or plastic origin of all, is the chief.—*Ed.*

The pulses of the five principles, Æther, Air, Fire, Water and Earth, are the *Sun* and *Moon*. Whoever contemplating these obtains abstraction, and thus discovers that which is perfection, such a one becomes concentrated in the universal spirit.

Praise be to Siva! and the destroyers of the *daityas* (demons), *Lakshmi*, *Narayana*, these are renowned throughout the universe, and are deserving of worship!

This temple of *Sri Somnatha* is beautiful as a Ratnakanti, (sparkling gem,) and, in magnificence, brilliant as the splendour of the Sun and Moon.

This Deity (Somnatha,) consisting of an assemblage of virtues, containing in himself every description of treasure, destroys and removes all kinds of pain and distress. Almighty Being! thou art victory! thou reignest on the shores of the ocean.

The Brahman *Somparo* is perfect, and well acquainted with the rites of sacrifice, the rules of meditation, worship, and the ceremonies of making offerings.

There was a prince, of the *Sandilya** race and *Raja Vira's* family, who caused a great sacrifice to be performed.

This Raja, sovereign of *Anahillapura Pattana*, this *Mula Raja*,† was a protector to the world.

He caused the Ganga-ghat to be built on the river; many were the pious acts done by him.

Mula Raja, caused to be formed reservoirs of water, wells, tanks, temples, religious places, schools and dharmasalas, caravanserais—hence these became as ensigns displaying his good name. Towns, villages and hamlets, were established by him and governed happily.

He became, as a *Chudamani* gem, (unexampled) in this universe; how can I describe his mighty feats! He conquered the whole world by his own power, and then protected his conquest.

* *Sandilya* was a Muni or sage, from whom one of the three principal families of the *Kanauj* Brahmans were descended and named.—*Ed.*

† *Anahilla* was the original name for *Nehrwala Patan*, the ancient capital of Gujarat, where reigned in succession various tribes of *Rajputs*; among which were the *Chalukyas*, to which race *Mul Raja*, according to the inscription from *Abu*, belonged. He was the first of his family, and preceded the invasion of *Mahmud* of Ghazna.—*Ed.*

The son of *Mula Raja*, named *Sri Madhu*, then contemplated the subjection of this earth.

He caused his kingdom to become populous and well cultivated; he enjoyed his government without fear (of his enemies.)

The son of this prince was *Durlabha Raja*, who, as *Siva* reduced Kamadeva to ashes, did so destroy the power of inimical kings.

His younger brother was *Vikrama Raja*, in strength resembling a lion.

Having assembled a numerous army, he took possession of the throne; and having subjected Fairy Devanyni, his fame became spread throughout the three worlds.

This prince, of high descent, governing with all the virtues required of a good king, rendered his people most happy.

Having made his own the goddess of victory, she became his standard bearer.

Of this Paramar race,* of Sri Vikrama's family, *Sri Kumarapala Raja* arose, a mighty hero.

He was a most renowned warrior, he was a king terrific and formidable, as the waves of the ocean.

The descent of Sri Kumarapala is now to be described.

The Chalukya race is most famous; and in it have arisen Rajas, generation after generation, forming a lofty tree of virtue; Rajas who caused, like Rudra, the forms of religion and the ways of justice to be observed; inasmuch as they showered favors on their people, as clouds by rain fertilize the earth.

Of this family arose a king of high renown, a great hero, named *Galla Raja*, who caused to be built the Hall of the Temple of Someshwara, and a famous sacrifice called Meghadwana was performed by his orders.

His son was Lalakhia, whose son was Bhabhakhia; he was a great warrior, and Bhima Raja was his friend. This prince Lala, when seated on his throne, resembled the full moon in splendour.

Whose son *Jaya Sinha*, having reigned with fame on this earth, as-

* A race of Rajputs, so named from destroying their enemies, and well known to History as the *Puwars*. They were a branch of the *Chalukyas*, as appears from this Inscription; but the Prince Kumarapala, whose era is A. D. 1174, here said to belong to them, is styled a *Chalukya* in the Sanskrit Inscription from *Abu*, No. XVIII.—*Ed.*

ended to the realms of bliss; his son Raja Sinha caused Samvat *Kumarapala* to be placed on the throne, but he himself conducted the affairs of the state.

The son of *Kumarapala* was *Sri Rakina*, a great sovereign, endued with all virtues; splendid as the sun, he became as *Sridhara* bright as the moon.

The protector of the world, the mighty, the renowned, Raja *Sri Bhima Bhupati*, paid much attention and respect to merchants.

Description of Sridhara Raja.

In the generations of the Chalukya family, appeared this prince, as a gem brilliant as the moon, possessor of every valuable quality, famous as Sri Rama.

Beautiful as Kamadeva, such was *Sridhara Raja;* in him was centred every virtue; by him was adoration shewn to the *deities*, respect to the *priests*, a prince perfect in truth.

As Iswara, superior to all the *deities* of *Vaikuntha*, so was he to the lords of this earth, exalted as Indra.

As the cow *Kamadhenu*, granting the desires of all, thus liberal was he, exceedingly compassionate, and possessed of great humility.

Again superior to other Rajas, as Rajahansa to other birds, his fame and splendour pervade this globe as the rays of the moon.

In Praise of Sri Somnatha.

Who can wash away sins as the water of a torrent, who can render his worshippers prosperous and successful, such a deity is *Sri Somnatha.*

This Temple is unique in the three worlds, a fit spot for devotion: whoever has an auspicious birth meditates on this god; the virtues of this deity are universally known, he is pure and undefiled.

Such is that Siva! from hearing whose praise the mind becomes pure. He will bestow on his worshippers all good things, and will grant them entrance into Paradise.

Resembling a gem, his place is central; he of his goodness will pardon the sins of those born in the *Kali age.*

His majesty and might are, as his virtues, spread throughout the world. May he always be predominant! Serpents are his ornaments.

He is lord of the universe; he is the sole asylum of mercy in the three worlds.

Description of Pattana.

This is a city called *Devaka Pattana*, possessing, by favor of Siva, lofty mansions, magnificent temples, numerous gardens, and delightful groves.

Description of Sridhara.

As the sea by its waves can remove mountains of sin, so *Sridhara* by his army governs *Somnatha Puri*.

There is in this city a beautiful temple of *Sri Krishna*; there is also a minister of great prudence, who expels evil doers and the vicious.

This *Sridhara*, having had several invocations recited, and sacrifices performed, has erected temples for the sake of religion, and has encircled them with gardens, groves and bowers. These temples resemble the pinnacles of the golden *Meru* in splendour and brilliancy. Of these, that of *Somnatha* is most wonderful; there are cupolas of various forms, with a variety of flags; so that the place resembles the holy mountain.

Description of the Priest of the Temple.

The Priest is the most excellent of mankind, the abode of virtue, the compassionate *Maheshwara*.

A constant worshipper of Siva, one who possesses all the most estimable and requisite qualities of a priest, an unwearied performer of sacred rites and sacrifices.

His mind is most pure, always engaged in the worship of *Hari*; he also pays adoration to *Vishnu*.

Whose devotion is such as to secure to him the possession of whatever he may desire; which will ensure him the happiness of the immortals, as well as the blessings of this life, and the comforts desired by mankind; which will obtain for him whatever object he may have fixed his inclination on; which is auspicious, which grants him all kinds of bliss.

By the virtues of this *Sri Somnatha* good fortune is procured for men. He is lord of the moon.

Sridhara Maharaja shines forth pre-eminent in his race; by this prince great respect shewn to the Brahmans of this deity.

The king pays devoted regard to this temple of *Sri Somnatha*, he bows to the renown of *Siva*: this temple is the abode of saints. It is inhabited by *Lakshmi*, by worshipping this *Siva's* feet, all sin is removed.

By beholding this temple even the stain of evil deeds becomes effaced; pain and disease also disappear.

In *Samvat* of Sri Vikramaditya Raja, 1272, A. D 1215, Vaisakhavadu 4th, being Friday, this Image was installed.

Art. III. — *The late Mr. James Prinsep's Correspondence, with Dr. Alexander Burn, on the subject of Indian Antiquities.*

The learned world at large, and the Indian public in particular, interested in penetrating the gloom that overshadows the history of this country, must accept with gratitude every relic of Mr. Prinsep's labours in Indian antiquities, which his ingenuity and genius served to adorn, and render more interesting to all. We have much cause for regret that he was not spared to complete them; as his acquirements and industry promised to illumine what less gifted investigators must leave untouched.

Secretary of the Society.

To the Secretary of the Asiatic Society of Bombay.

Dear Sir,—I beg to present, to the museum of the Society, eight letters of the late James Prinsep to my address.

The interest which attaches to the memory of one so deservedly loved, and esteemed, induces me to hope that they will be an acceptable present: — for there are many parts of them, from which such persons as are desirous of prosecuting inquiry, into the languages and customs of the ancient inhabitants of Western India, may obtain valuable hints and suggestions.

I believe that the figures on the copper plates and coins of Gujarat were what led him to the discovery of the ancient numerals, and in which much still remains to be done, for up to the time of his death, or since, I believe nothing farther has been done than is shown by the last letter of this series.

I remain, dear Sir, yours faithfully,

Bombay, 2d June, 1842. A. Burn.

To Dr. Alexander Burn, Kaira.

My Dear Sir,—I have submitted the copies of the two Copper plate grants, you have been so very kind as to send me, to the inspection of the Asiatic Society, at the meeting of the 1st instant, and I was directed to express the Society's best thanks for your zealous attention to its interests. I then proceeded to transcribe one of the plates, but although much of the text is readily legible, and all the essential part, regarding the succession of Rajas, might be put together and unravelled at once, it is plain that a great many passages must remain obscure, and a great deal of time be taken up in guessing contents, which, were the plates themselves here, or their exact fac-simile, would be rendered easy and distinct. I thankfully therefore accept your kind offer of sending round the plates, if you can find a convenient opportunity and a speedy one; but should the engraving be deep, and the letters not filled with dirt, you will find it very easy to take off an exact fac-simile, fully as good as the plate itself for the purpose of decypherment. Thus:—prepare some printing ink not too liquid, daub it on with a printer's dauber all over the plate, moisten some paper, (China will do,) place it carefully on the plate and press it on with the palm of the hand; it will come off with the letters in white on a black ground. I have adopted this plan even for lithographing them; passing immediately the impression, thus taken, through the rollers with a sheet of plain paper. I get the text un-reversed; and this is passed on to the lithographic stone in the usual way.

I am much provoked that the Journals have not reached you regularly. Our opportunities by sea for Bombay are irregular, but all have been dispatched long since to the care of Mr. Noton; and, now that the dak rules admit of their going direct, I hope he has sent them on. Meantime I cannot refrain from sending a duplicate of the number containing the notice of Saurashtra coins, as I wish particularly just now to combine all efforts for the further elucidation of the old *Saka* coins, and their successors, of which Mr. Wathen has sent me one or two very good specimens. Any you can add, that are at all legible, I shall be much obliged for. The group I am now on have reverse like a man; also , and then come the peacock reverse, the obverse containing always a head—but I must break off for the dak is going.

Yours very sincerely and obliged,

3d November, 1837. J. Prinsep.

My Dear Sir,— Your last two pages of Copper plate grants are so beautifully done, that the pundit could not find half a dozen errors in my transcript, and he read it off immediately. He says it is in a good style, and has a double meaning in parts, (a fanciful way of shewing wit). I shall give a full account in January, and by that time I hope we shall make out all of the former larger plate, which is in a rather older form of character, and either less accurately copied, or perhaps more worn on the plate, so that you could not make it out so readily: with care however it can all be restored. The termination is quite clear, and it is this that makes me now write thus hastily to you.

I have, I think, discovered a clue to the numerals of this ancient character; and I wish to get as many examples of them together, and as accurately copied as possible. In words your inscription gives *Sawcat* 380, in figures . The first (3) corresponds with the Cashmerian 3 nearly, and also with the old Nagari ३ or ३. It is found on Mr. Wathen's plate thus , and reads I think 307—though he reads it, *Sawcat* 9 (of the Balabhi era). It is 307 of the *Vikrma Sam.* of course, and this is confirmatory of the Balabhi theory; also of the age of the alphabet, &c. &c. The same 3 is found on the Bhilsa monument; also a little modified on the Gúmsur grant. It is in your other plate also (probably 345), but I should much wish for a more accurate fac-simile of this and every other date you can give me, along with the extract in words of the date, year, month, &c. wherein they occur. I can then carefully analyze them by the time the translation is ready.

I am overwhelmed with inscriptionary tribute from all sides! To-day a most curious and important inscription from Cuttack has come in, with a formal Bhuddist invocation *namo arahantanam.* Glory to the saints, &c.

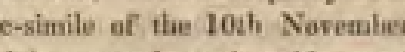
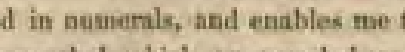
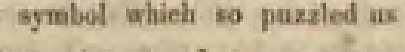
I can make nothing of your large medal; the others are all old acquaintances. The large bricks are found in Assam!! The glass seal is Mahomedan of course. I have now to scrutinize General Ventura's collection and never was so hard pressed.

Let this plead my excuse for so hurried a reply to your welcome letter.

Yours sincerely,

Calcutta, December, 2d, 1837. J. Prinsep.

My Dear Sir,—You have partly anticipated my request in sending me your fac-simile of the 10th November. It contains another date written, and in numerals, and enables me to fix the value of the number 9, the very symbol which so puzzled us in the Bhilsa inscription ९

The written date is 
Sanvatsara sat traya Chaturnnavatty adhiko, three hundred and ninety-four; then in figures 
vaisakh, &c. I confess I should rather have taken 
for a four, but unless there is some uncertainty in the copy, it must remain as now read. We have just before another figure somewhat similar, and very like the number in Mr. Ommaney's Baitúl grant
The pundits find some difficulty in reading my transcript of this and of your first plates. Can you not send us impressions, taken like the enclosed? Ink the whole over with printer's ink laid on with a dauber, and then lay on a sheet of China or other paper moistened, as for printing. Press it on with a damber of cotton, or with the palm of the hand, and you will find the whole writing left white and quite legible, provided always the letters are not choked up with dirt or verdigris, in which case they must be cleaned first, and there is some danger in doing this, of mistaking the direction of the letters. The eye then comes into use. But in general the eye is so fallacious as not to be trusted. For proof, see the revision of the Allahabad inscriptions from the fac-simile, compared with Dr. Mill's reading.

With repeated thanks to you for your most welcome communications,

Believe me, yours sincerely,

19th December, 1837. J. Prinsep.

My Dear Sir,—The communication between our part and Bombay is so irregular, that I can never manage to be regular with my subscribers in that quarter of the globe. Nevertheless I fancy all the numbers have been sent, and I trust ere this your missing ones have come to hand—that is the later ones; the former ones and useful tables you shall have duplicates of. It will be better to defer sending them until the new dak regulation takes effect, which will enable them to travel at very moderate *rates*—3 or 4 Nos. in a *baeggy* parcel.

I will use your permission to draw for the amount on Remington & Co. I have about Rs. 800 or 900 due in the Bombay Presidency, which

cuts a sad hole in the balance sheet of the publication, but I know it will all come in some time or other. You ask me if copies of the inscription grants will be *acceptable* to me. Acceptable is too ordinary a word for the value I put on such articles! I have at this moment the more intense interest in them, because I have been fortunate enough to unravel the mysteries of the *Lath* character—no fewer than 20 sheet samples (fac-similes) just received from *Sanchee* near Bhilsa, which have proved the half of the whole. This has followed on the heels of another discovery equally fortunate, viz. the reading of all the Khatyawar or *Saurashtra* coins with the long character. As the latter will most interest you, I enclose a proof of the legends, accounts of which you will have in the ensuing No. It gives me 11 kings of the *Sah* dynasty, all *elective* monarchs. The first line (as a sample) runs thus—

राज्ञःकृविमल यद्रसाहस स्वामि जनदमपुत्रस.

There are, as you see, no vowel marks. The obverses have *Greek* and perhaps *Pehlavi*, with the face of paramount Parthian sovereigns.

My last No. was full of coins that will also interest you; but you are in a field beyond my reach, and can pick up coins that will serve excellently to illustrate what we have. The समुद्र गुप्त is most likely *Samanta Deva?* What surprises me, is its exact resemblance to the coppers of our *Chandra Gupta* series. Impressions (or duplicates) of our coins of this kind, and the little श्री गुप्त kind with names, would be valuable to me. *Item* all of the peacock device with good legends, which I hope to make out immediately. The middle series or भोज *Parmaras*, I am now going to look at again, but we have no very perfect ones. The more inscriptions of the *Siladityas*, &c. we publish, the better. There must be items of novelty and collateral interest in them. I have all the *Girnar* fac-similes, from Mr. Wathen, to digest—a labour of months, but I hope it will prove productive.

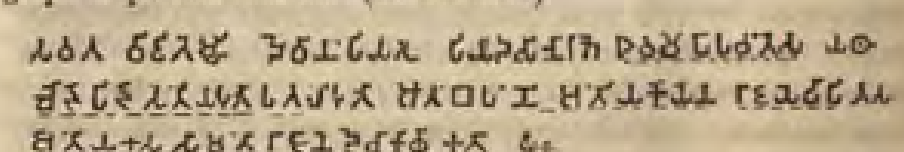
Believe me, ever yours sincerely,

23d May, 1837. J. Prinsep.

My Dear Sir,—I have delayed thanking you for your last most welcome reply, enclosing fac-similes of numerals and of one of the coppers, (which latter is very satisfactory when placed along side of your transcript, for it shews that you are scrupulously accurate,—indeed so true

is this, that I have had little difficulty in putting the whole of the three plates into modern *nagari*, now they are all read and translated)—but this is a long parenthesis. I was going to say that I delayed until I could send you proof of my not being asleep regarding dates on the coins. Yours arrived too late for insertion; but they shall come into another plate (of the symbol coins), and you will see *one* very perfect one of the same kind, fig 22. sent me from Ougein, by Lieut. Conolly, in perfect preservation, but unfortunately cut off in the date ٦٩ 340? However I must turn from this to a still more prolific subject of interest in which you can aid me.

You know the *Girnar* inscription in the old character? Are you far from it, or it from you? Or do you know any one near the place who could endeavour to take a *fac-simile* on paper or cloth, particularly of the 2d paragraph on the left hand side. This edict of Asoka contains an announcement of a *Medical Service* established throughout his dominions, as far as Ceylon, and even in the rule of *Antiochus the Greek's* generals!! I should put no faith in such a result, had I not a duplicate of the edict, strange to say, from Cuttack!! There are but one or two letters varying in the two, and none in the name which is four times repeated. You may conceive how anxious I must be to have a copy that I can look upon as authentic, for Mr. Wilson's, though very good, has numerous uncouth letters which must necessarily be guessed. The paragraph in question runs thus (2d left hand).



"Every where in the dominions of Asoka, as well as among the sinless of other countries, as Chola, Pira, Satyaputa, Ketaliputa (Pataliputo), as far as Ceylon, and in the rule of Antiochus the Greek, &c."

I have marked the doubtful passages, but will endeavour to send you the large page copy I got from Bombay, that you may, if possible, have it re-examined letter by letter, if it be out of the question to procure an impression from the stone itself. It is surely well worth the trial. I have deputed our librarian Lieut. Kittoe to Cuttack, on purpose to re-examine the Cuttack version, which is unfortunately erased in the names of the

places, beginning only with Antiochus' name, which is perfect. No time for more.

Your's very sincerely,

3d March, 1838. J. PRINSEP.

MY DEAR SIR,—Your zeal and enthusiasm in the matter of antiquities far exceeds all I could have expected. To undertake a journey of 180 miles at this season, was so much beyond my hopes, that I wrote to Lieut. Postans of Bhúj, thinking to have two strings to my bow; and when I found on completing my *Girnar* tablets that they spoke of Ptolemy as well as Antiochus, and that the neighbouring Junagarh Sanskrit inscription spoke of Asoka's Greek Raja building a bridge over the *Palashini Nadi*, I thought it imperative even to do more than solicit private aid; so I wrote to Lord Auckland to have Lieut. Postans, (or any one else equally zealous and disposable,) deputed at the public charge to take minute copies of all, both inscriptions and buildings, and to survey the whole of this rich field of antiquities. No answer yet, but Lieut. Postans says he cannot yet leave, but has written to his friend, (perhaps Capt. Lang,) to do the needful.

Had I known Capt. Lang's name at first, I should have addressed him as the author of the cloth fac-similes I now possess; they are beautiful, but not perfect. To point out where a revision is desirable would require to re-copy the whole document. This will be saved by my referring you at once to the ensuing Journal, which will contain the whole *Girnar* inscription set up in type, and the notes appended will sufficiently point out the doubtful places; but an absolute fac-simile of the whole is far the easiest to take, and the most satisfactory. I give in the same Journal a comparative table of alphabets, which may be of some aid in your researches, and will add duplicate plates as well as a copy of the Junagarh Asoka inscription, in anticipation of my April number. The printer is perplexed with the nature of my materials, and cannot keep pace with my wishes at all.

The third inscription also at Junagarh, and I believe on the same stone, is almost wholly illegible, and yet it *ought* to be the plainest, being more modern than the others by some centuries; it is of the time of *Skandagupta*, whose coins have the symbol, and is in good preservation. It should be carefully copied by hand, as well as printed in fac-simile, and

reference to the alphabet of the 5th century after Christ in my table, will assist in making it out, or to the alphabet so called no. 2 of Allahabad. I write off in a great hurry, as you say you wait my reply. Should you be able to go I shall be exceedingly pleased, because your copper plate fac-similes are a promise of perfect fidelity of copy; not a letter or vowel mark has to be altered in reading these—your present one especially, which is verbatim the same as one of the former, all but the date. I am only puzzled about the vowel i. You make ꣳ the short i, and Wathen the long one, the short one in his plate being ꣳ without the dots. In some of your plates the vowel is written ꣳ but never without the two dots.

I am so engaged in these antiquarian researches, that I leave myself no room to speak of mulberries and silk; not that I do not fully feel the importance of your efforts in this way. I hope the Government has given you all the aid you want. Your account of *Balabhipura* makes me wish for a full description of the place, and whoever does go to Girnar should be an artist, for Dr. Wilson gives a most tempting description of the sculpture in and about the place, and it evidently ought to be illustrated in the most complete manner.

Do not start until you have ascertained from Capt. Lang or Lieut. Postans what they have done. Were it the season for a trip of pleasure, the most agreeable way would be to meet there, and each work in his separate department to make a joint essay or volume. I only wish I could hie thither too.

Believe me, ever yours sincerely,

22d April, 1838. J. Prinsep.

My Dear Dr. Burn,—I hasten to announce the safe arrival of the Copper plates, and of the parcel of antique coins. The former are in a perfect state, and will doubtless serve to remove all our difficulties of the pen-transcript. I will print off a fac-simile in lithography, as of the Bulal plate in the January number.

The sight of the coins reminds me of your question how to clean decayed coppers. —Certes such as these are beyond cleaning; a hard brush, sometimes a metallic wire brush, answers the purpose.

One of your coins was a *date* one, and very acceptable of course. I think there are but two figures on the [illegible] coins, and fear they are only

dates of the reign. My reading of the Junagarh inscription you will see in the April number; it leads to another useful link,—the *Sak* dynasty are antecedent and posterior to Asoka! — and the name read by me *Kritrima* turns out to be *Kshatrapa*, which is the title of all the dynasty; in the inscription is the proper writing, the deceived me; kri, I now know (vide my table), should be for that date . The value of our coins of that group is thus enhanced and the cause of their Grecian obverse explained. But I can write no more. The object of this is to send the enclosed, (after perusal), through you, to Lieut. Postans, at Girnar; should he, as his letter to me seems to indicate, have started to save the monsoon. If not, act all in concert after receiving the *hooks* from Bombay. I incline to recommend a pause until winter, but this is against my curiosity I confess. I have gutted some Journals to put Postans, or whoever is deputed, in possession of materials; the remainder shall follow, and in a few days I hope to have the April number out.

I put in duplicates of the alphabets. The Journal must go I fear by *banggy* under present regulations, but I take the liberty of franking it, being in truth for the public service.

I enclose specimens of my new mode of printing coins.

On second thought, I make them into two parcels for two successive dates.

Your's very sincerely,

9th May, 1838. J. Prinsep.

My Dear Dr. Burn,—Just too late was your last, or I had certainly introduced your theory of the and other symbols, on the Buddhist coins, along with my plate of the *Saurashtras*. I shall still have a famous opportunity of doing so when I give a plate of all the symbol coins with old character legends. I like your account of the much and have little doubt you have hit the right solution, and once in the true course we shall fall on all the rest. I have been questioning my pundit and find the whole can easily be explained by him from practices yet prevailing; as in the fire worship, they make the *Chardwara Marhanthi* ground . The *tripundra* is also common to Brahmans; one would think it were the original

of craniological humpism. I cannot exactly concur in your *yoni* theory; the name has too palpable reference to other matters connected with the *lingite* worship to be construed into *yavana*. The fact of hospitals not existing so generally is curious. I must hoard up all these illustrations against the time when I shall be able to put the whole into a connected form.

Your silver coin is most welcome, though not as you hope a new name; it is *Viswasah*, son of *Rudra Dama;* the little one is a *Kumara Gupta Mahendra;* you have cleaned the letters of this excellently. The surprising thing after all is that we find such small variety of names on our coins; passing through several centuries we should have surely more that 2 Maharajas. How comes it too that we have no *Siladitya*?

I have sent the No. of the Journal, (which I hope you will get with this,) through the Secretary of the Bombay Government, to Lang or Postans at Girnar, as either or both may be appointed; the former is most conveniently situated. I regret you are not of the party, as from all I hear you would have contributed, in geology, and botany, and other physical ways to the produce of the expedition.

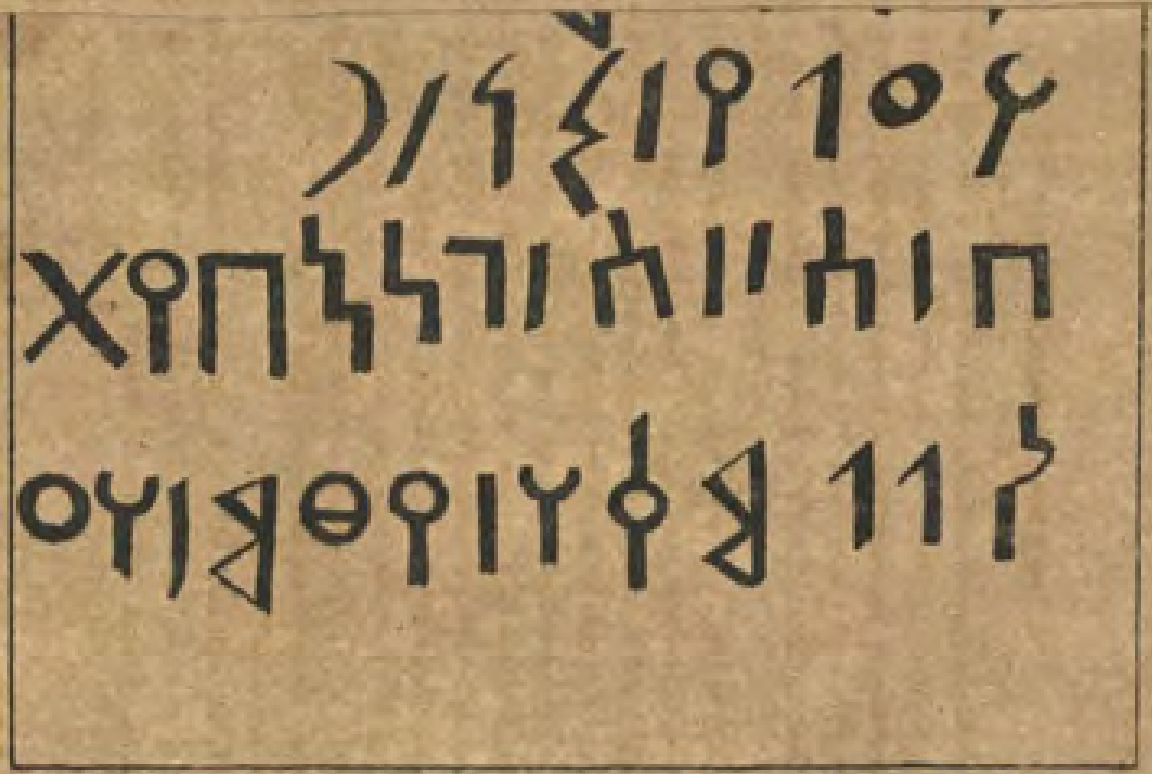
I shall be anxious to see what you say to my numerals; they almost all depend on your plates. I hope others may still turn up to give us the 1, 2, 6, 7, in an unequivocal shape.

Your's very sincerely,

J. Prinsep.

Art. IV.—*Hamaiyaric Inscriptions, from Aden and Saba, translated into English: with observations on the establishment of the Christian faith in Arabia.* By James Bird, Esq.

The elegant discourses of Sir William Jones, on the various nations of antiquity, published in the early volumes of the Asiatic researches, owe their fame, more to the celebrity of his name and the universality of his learning, than any profoundness of investigation which they display. In that early period of oriental research, they were calculated to excite curiosity, if they did not exhaust learning: and this result is no where more obvious than in his fourth discourse on the Arabs; where, relative



Hampton's Lith.

Plate IV.

Hamayaric Inscription found at Aden.

Hamayaric Inscriptions from Mareb or Saba.

Plate V

Inscriptions from Mareb or Saba continued

No. 4

Hamptons Lith.

to the characters, in which the old compositions of Arabia were written, he remarks,—"The Koran originally appeared in those of *Cufick*, from which the modern *Arabian* letters, with all their elegant variations, were derived, and which unquestionably had a common origin with the *Hebrew* or *Chaldaick*; but, as to the *Hamaiyaric* letters, or those which we see mentioned by the name of *Almusnad*, we are still in total darkness, the traveller *Niebuhr* having been unfortunately prevented from visiting some ancient monuments in *Yemen*; which are said to have inscriptions on them: if those letters bear a strong resemblance to the *Nagari*, and if a story current in India be true, that some *Hindu* merchants heard the *Sanskrit* language spoken in Arabia the happy, we might be confirmed in our opinion, that an intercourse formerly subsisted between the two nations of the opposite coasts, but should have no reason to believe, that they sprang from the same immediate flock." That which was inaccessible to *Niebuhr* has, through the enterprize of Officers in the Indian Navy, and recent surveys of the Southern Coast of Arabia, been laid open to our investigation: and we can only wonder that a subject of such interest, connected as it is with the history of *Arabia* and *Ethiopia*, should have been so long neglected. The profoundly learned investigation of Professor Gesenius, on the subject of *Phœnician monuments* and *Palæography*, * will greatly assist those in their researches who may be disposed to turn their attention to the origin of the *Hamaiyaric* letters; which, consisting of consonants possessing inherent vowels expressed by characters, supported on props, were called by the ancient Arabs *Al-Musnad*, or the propped character.

This in the opinion of Gesenius was remotely derived from the *Phœnician* letters, and had its origin among the *Hamaiyar* Arabs of *Yemen*, giving rise to the modern *Ethiopic*, almost similar to the ancient character. It will be our endeavour to shew in another paper the peculiarities of both alphabets, and whence they originated, but in the mean time confine our observations to the translation of the present *Hamaiyaric* inscriptions submitted to notice, which have been brought to light through the exertions of Captain Haines at Aden, and the late Dr. Mackell of the Bombay Medical Service; who, while resident at *Sanaa*, obtained them from the neighbourhood of *Mareb* or *Saba*. The stones, on which Nos. 1, 4, and

* Scripturæ Linguæque Phœniciæ monumenta. Guil: Gesenii p. 84.

5, are engraved, may be seen in the museum of the Bombay Branch of the Royal Asiatic Society, and were presented to the Institution by Dr. Smyttan: in whose possession I also inspected a gold coin, brought from *Mareb*, which was probably of the time of *Nousherwan*, and supported an inscription in Zend characters.

The first inscription, engraved on a circular polished slab of white marble, found at the depth of twenty feet in digging some old ruins at Aden, was sent from thence by Captain Haines; and is supposed by him to relate to the period when the Christian chiefs of *Axum*, or *Ethiopia*, possessed themselves of Southern Arabia and re-established Christianity. This would make the inscription as late as A. D. 521; while its context appears as written when Christianity was first established in Arabia; or rather when *Aden* was first made the seat of a resident Bishop. This latter event took place during the reign of the Emperor Constantius, about A. D. 356, when *Zafar* ظفار, or *Sephar*, became the Archiepiscopal seat of Christianity among the *Hamaiyar* Arabs, and a Church and Bishop were established at Aden.*

This inscription reading.—SHAKIR SHARAA ZA NABAK BADWIY MAGGA SHAMA BA ABADAN PAPA RAS ADEN.

شاكر شرع ذ انباق بدوي مكا شام بابادان پاپا راس عدن

May be translated:—"*He the Syrian philosopher in Abadan, Bishop of Cape Aden, who inscribed this in the desert, blesses the institution of the faith.*

Aden, the *Arabia emporium* of the Romans, was prior to the Council of *Chalcedon*,† the seat of a Christian Bishop, who was subject to the Metropolitan of *Zafar* ظفار; under whom also were the Bishops of *Najran*, *Hormuz*, and the *Island of Socotra*. These Churches were subject to the Jacobite Patriarch of Alexandria, until between the years A. D. 435 and 476, when the Nestorians, who spread themselves over Southern Arabia, seceded from the orthodox faith, under the Archbishops of Seleucia and Persia.‡ Soon after the latter date, or A. D. 535, Cosmas Indicopleustes writes there were Nestorians in India, Arabia Felix, and the island of Socotra, whose Bishops and clergy were ordained from

* Bibliothecæ Orientalis Assemani: vol. iii. par: secunda p. 719 and 784.

† The council of Chalcedon was held A. D. 450.

‡ Assemanus; tom. iii. pag. 77 ad pag. 90.

Persia. The town of *Abadan*, situated on the river Tigris, and distant from *Basra* about one and half a day's journey, being mentioned in the Aden inscription, would render the supposition probable, that, in place of having reference to the first institution of the Christian faith in Arabia, it bears allusion to the propagation of the Nestorian creed. In the modern Persian Dictionary, *Abadani*, signifying a native of *Abadan*, is the name of a man celebrated among the Arabians, for his learning and piety; and offers a curious confirmation of this Aden inscription, and of what we otherwise know from history. In the above inscription the Arabic شاكر *Shakir*, or *Ethiopic* ሰኪ, is written سقر; the original *Hamaiyaric* using *sh* and *s* indiscriminately, and having only one character of the letter k ቀ in place of two as in the more modern alphabet. *Magga*, a corruption of the Greek word ΜΑΓΟΣ, signifying a Persian philosopher, has in the inscription the evident meaning of priest; as both Arabians and Ethiopians were wont to designate the priests, or presbyters of the Christian religion, *Kahans* كاهان, or sorcerers. Regarding these Major Price, in his essay on the history of Arabia, tells us, on the faith of the *Tarikh-Tabary*, that "the *Kahans* are described as a class of men, found both in *Arabia* and *Syria*, professing to give information on things unseen, not yet in existence, or to come to pass at some future period; to discover thefts; to describe the circumstances of an untold dream, and to furnish the interpretation: in short without any kind of previous explanation, to give to individuals, in all occurrences of life, a satisfactory reply to every inquiry. In Arabia, these soothsayers bore the name of *Kahans*, but the *Oustauds*, or masters, in this occult profession, at the period under consideration, were two persons of the name of *Shakh* and *Setteiah*, to whom all in Arabia looked up for instruction in the mysteries of the art.

No. 1 of the inscriptions from Mareb is executed over the figure of a person on foot, and reads,

بدوي عدوا

BADAWY ADAWA,

signifying a *Bedawin of the opposite coast*; from which it would appear that these figures must have been taken from a Christian Church, wherein were represented the characters of the several tribes constituting the Ethiopic government of *Axum*, and under whose power the country of

Southern Arabia more completely fell, about the year A. D. 521; when the *Nejash*, or ruler of *Abyssinia*, named *Elesbaan*, conquered the Hamaiyar Arabs of Mareb, and put to death their Jewish chief *Damaan*, otherwise called *Zú-Nowaas*.* The inference we have drawn from inscription No. 1 is supported by the evidence of inscription No. 4, which reads,

رب زان بجاء شوا عدوے

Rab zan Buja Showa adawasy,

and may be translated,—"*The Lord mounted the Bojas of Showa, and caused them to cross the sea.* The modern tribe of *Beja*, or the Bajaditæ, called in the Greek inscription from *Axum*† *Bougaei*, BOYΓΑΕΙ were a nomadic people, who inhabited the Egyptian desert, westwards of the Nile, and possessed the gold, silver, and emerald mines in that quarter. They are the ancestors of the modern *Ababdi* and *Bisharin tribes*, and are known in the country of *Nubia*, between the first and second cataracts of the Nile, by the name of *Kanuz*. Masudi, writing regarding them in Hej. 330, A. D. 941, says that the *Bajaks* occupied the tract of country, situated between the sea of *Kulzom* and the *Nile*, were at enmity with the African tribe of *Nubah*, had mines of gold and emeralds in their country, were ruled by a chief of their own, and, on adopting the faith of *Islam*, intermarried with the Arab tribes of *Rabiah*. Their Chief, when *Masudi* visited Egypt, was *Abu Merwan bin Ishak*, belonging to the family of *Rabiah*, who was accompanied by three thousand persons of his tribe mounted on camels. This last statement of the historian illustrates the character in which the *Bujah* tribe is represented by No. 4, and tends to shew that they were carriers of merchandize, between Arabia and Egypt, from the earliest times.

* See Major Price's history of Arabia, Bibliotheca orientalis Assemani: Tom. III par: secunda p. 503.

† The Greek inscription of the time of Aeizana, king of the Axomites and Homerites, was copied from a stone at *Axum*, and may be seen in Mr. Salt's voyage to Abyssinia, p. 411. The date of the inscription is A. D. 356; as the Emperor Constantius sent an embassy, through Theophilus the Indian, to the brothers Aizana and Saizana, for the purpose of persuading them to relinquish the doctrines of Athanasius, and adopt those of the Arian Patriarch Georgius.

Inscription No. 2 may be read MYNETY SABAAN ZABYA ZA OZA SABAA ZAMATA. مينتي ثبا ءن ضا بي زاعزي سبأ ضا مت and signifies—" *The monastery of the Pagan Sabeans: this is Oza of Shaba destroyed.*

The Sabeans, who derived their name from *Shaba* שבא, otherwise spelt in Hebrew Saba סבא, were sometimes called *Mendai Yahya*, or the Christians of Saint John the Baptist, who came from Galilee and settled in Arabia, and Harran on the Euphrates. They gave name to a particular form of the Syriac alphabet called *Mendaan* or Sabean;* and, while Christians in name they were Jews in character, following the principles and practices of Pagans. D' Herbelot, on the authority of *Ibn Khallikhan* and other Mahomedan authors, says that they were Syrians or Chaldeans; differed from the *Magi*, or followers of Zoroaster, and worshippers of fire; professed a religion, composed of Jewish, Christian and Mahomedan articles of faith, of which the following are the principal:—They worship one God, venerate the angels and stars, turn in praying towards the North and sometime South, read the psalms of David, but chiefly believe a certain book written in the Chaldaic language, and ascribed to Adam. They also produce certain moral compositions, of which Adam, Seth, and Enoch are said to be the authors, pray seven times daily, fast during the month preceding the vernal equinox; hold in honor *Harran*, a city of Mesopotamia, whither they are wont to go on pilgrimage; believe in Sabin the son of Edris, and think that he is buried under one of the pyramids of Egypt. *Harran*, or Hellenopolis, where the worship of idols prevailed, seems to have been one of their earliest seats, and is still held in veneration by the now remaining followers of the sect.† They flourished cotemporary with the *Manicheans*, and had many principles of belief in common with them. After the manner of the Syrians, Phœnicians, and earliest Arabs, they worshipped the Moon, or Venus, as *Baalat Samin*, the Queen of heaven, one of the three Arabian idols, called *Lat*, *Manat*, and *Ozza*, and which are mentioned in the *Kuran*. The latter is noticed in the above *Hamaiyaric* inscription under the name of *Ozza*— العزي, which Sharistan and commentators on the *Kuran* say was an idol or tree, held sacred.‡

* See Grammatica Syriaca Joannis Davidis Michaelis, p. 17.

† See Assemanus Tom. III par. secunda p. 192.

‡ Specimen Historiæ Arabum Edvardi Pocockii p. 92. Assemanus vol. III par: secunda p. 582.

About the end of the fourth century of the Christian era, the worship of sacred trees, according to Cedrenus, became common in Egypt and the East; under which form *Nanaa*, *Alitta*, or *Ozza* of the Arabs, appears to have been worshipped; and little doubt can exist that *Urania*, or *Venus*, derived her latter appellation from the Ethiopic ዕዕ Oza signifying a tree.

No. 3 inscription appears incomplete, and to want the right hand portion of its three upper lines; but, from what can be made out from its context, it appears to relate to the destruction of a temple of the moon. The last portion of it reads,

Saba wahami worhaki Maggana سبأ واهمي ورهقي مگگنا

and signifies, *the superstitious Magi, or worshippers of the Moon of Saba.*

No. 5 inscription is of great interest as relating to the history of one of the Nestorian Bishops, called, in the chronicles of *Dionysius*, Zacchæus; who, about the year A. D. 759, was ordained by the Patriarch George, and set over the tribe of Arabs called *Charmæ*. Below his image, sculptured on a piece of white marble, that was probably built into the wall of a Church, the following is inscribed,

Rab sana waris Shava inad za aum ghahas-Sadina ba andam,—Muazzana rab aum Zagha Mar,

رب سنأ وارث شوا اينادذا عام گاهس سادن با اندام معزنا رب عام زاگامار

Of which the translation is,—*The Lord of peace, heir of Shava, who by right superintended the Church of the perverse remote nations. The venerated master of the people, the Saint Zagha.*

The people called *Charmæ*, over whom Zacchæus of the above inscription was placed, are mentioned by Pliny as people of Arabia, in the vicinity of the *Minæi*; who were southwards of the *Atramitæ*, or people of *Hazramaut* حضرموت. Their chief city *Charma* was according to Assemanus * an episcopal see, subject originally to the Jacobites, but subsequently fell under the power of the Nestorians, and was united, under their Metropolitan, with Basra (Bassora) and Behrain. It appears to be the same place as mentioned by others under the name of *Sciarma*, and may be identified with the modern *Ras Sharma*, or *Cape Sharma*, on the southern coast of Arabia; distant from which, only a few hours, lies the Bedawin town of *Dees*, where the late Mr. Hulton and Mr. Smyth of the Indian Navy, found, near *Jabal Aaledma*, in the country of Ham-

* Tom. III par secunda p. 737.

Plate VI.

Of half the Original Size

Hamptons Lith.

mam, those Hamaiyaric inscriptions, which are published in the Journal of the Royal Asiatic Society.* They belong to an early period of the Christian era, and were written, as appears from some of them, when the Romans had free intercourse with the Southern Coast of Arabia.

One more point, in the inscription just translated, remains to be noticed. It is doubtful whether the name *Shawa* has here application to the *Save* of the *Periplus*, situated three days from *Mosca* and thirteen from *Aphar*, or ظفار *Zofar*, in the country of *Sanaa*, or whether it bears reference to *Mareb*, or Saba, the kingdom of which, Pliny tells us was otherwise called Save.† This last is written Σαυη by Ptolemy and Arrian.

In concluding our observations on the above very curious inscriptions from Southern Arabia, which have reference to the establishment of Christianity there, it will be expected that some information be given, relative to the origin and progress of the Christian faith in these parts, prior to the foundation of *Islamism*. The inscription sent from Aden belongs probably to the time already fixed for its date, the middle of the fifth century; and the inscriptions, said to have been brought from Mareb, or Saba, were in all likelihood found at *Zofar* the ancient Metropolitan seat of a Bishop.

The Hamaiyar Arabs of Yemen, or Arabia Felix, otherwise known by the name of Sabeans, were in their origin of Jewish descent, and of the same general stock as the *Axumitæ* of the opposite coast, more generally called Ethiopians. In classical history they are known by the names of *Homeritæ*, *Atramitæ*, and *Sabæritæ*; the first of which appellations seems to have been taken from their tribe, the two latter from their country. During the early ages of the Christian Church they were often confounded with the Indians, on account of their vicinity to the Indian Ocean; and while the *Axumitæ*, *Ethiopes or Abissini*, were called, as regarded their relative situation to Egypt, the *nearer Indians*; the *Hamaiyar Arabs* were denominated the *ulterior* or *interior Indians*, who live beyond. In the sacred Scriptures, and by the Hebrews, both these families of Arab Jews are called the children of Cush, and are thus mentioned by Isaiah, Chap. xlv. v. 14, "the merchandize of Ethiopia and

* Vol. V. p. 21.

† Plinius lib. VI. Cap. XXXIII, and my observations on the coast of Arabia, Journal of the Royal Geographical Society, vol. IV.

of the Sabæans shall come over unto thee." In the age of Solomon they were subject to the Queen of Sheba, who by general agreement was Queen of the South, and Mistress of Sabæa: and who by Josephus is called "Queen of Egypt and Ethiopia," because she exercised control as would appear, over the *Bejas*, who were of Arabian origin, and possessed the western shore of the Red Sea from the earliest times. Herodotus, lib. 7 § 70, distinguishes them into two tribes, the Asiatic and African; the former of which were to the East, and served with the Indians in the army of Xerxes; the others were westward, and had crisp hair like that of Africans.

These families of Arabs, who inhabited either coast, worshipped, originally like the Jews, one God; but soon mistaking the creature for the Creator, and, following the example of other nations, adopted the worship of idols. Christianity, defaced by many Pagan notions, was introduced among them, at a very early period of our era, and some are disposed to think that the Magi, who came to worship Christ at his birth, were Arabs from the land of *Saba*, asserting that what was prefigured, by the Queen of Sheba bringing gifts to Solomon, the type of Christ's coming, was fulfilled in the persons of the Magi, who under the guidance of the star, came to inquire after a king of Israel, whom they happily found.

The light of the gospel was originally brought into Arabia, as some think, by these evangelical Magi; and was further diffused by the Apostle Paul, who went not to Jerusalem, where were Apostles before him, but departed for Arabia, and after three years returned to Damascus.* Other Apostles, who evangelized Arabia, were Matthew, Bartholomew, Thomas, Mathias, Timon the deacon, Adæus, and Mares. Timon was one of the seven deacons of the Church of Bostra, in the Hauran, which was the episcopal seat of Christianity in Arabia, or rather Syria, until after the Nicæan Council, A. D. 325, when Petra in Desert Arabia was made the seat of a Bishop. Soon after this period the *Axumite*, during the reign of the Emperor Constantine A. D. 327 were converted to the Christian faith † by Frumentius; and the *Himyar Arabs*, or *Homerita*, who were of the same stock and had received the Christian religion from Saint Bartholomew, adopted the Arian faith, A. D. 354, under the instruc-

* See Epistle to the Galatians Chap. 1 v. 17.

† Socrates Eccl. Hist. lib. 1 cap. 19.

tions of *Theophilus* the Indian monk and Bishop, who was sent by the Emperor Constantius to make a treaty with the Hamaiyar Arabs, and obtain permission for the erection of Churches to accommodate the converted Arab Christians and Roman navigators of the same faith, who frequented the Arabian shores.*

Baronius, who quotes from Nicephorus contends that *Adiabene* on the Euphrates was the country of the Arabian Bishop Theophilus; while others have endeavoured to shew that he was a native of the island of Deo, on the coast of *Khatiawer*, who having brought over the Arabs from the errors of the Gentiles, went into Aria, or *Khorasan*, where he built three churches. Philostorgius asserts that, having completed his mission among the *Homerite*, he sailed from the island of Deo, his native country, and visited other quarters of India: where, finding Christians following a wrong faith, he set them right; and then returning from India to Arabia, and Ethiopia, he joined the Roman merchants trading in these parts, and departed for Constantinople, where he was received with much honor by the Emperor. Regarding the *Homerite* at this time the reader *Theodorus* observes, "Immireni, gens est Persis subjecta, ad extremos noti fines habitans. Et ab initio quidem Judei fuerant, jam inde a Regina Austri, quæ ad Solomonem olim venit. Postea Gentiles facti sunt. Anastasii vero temporibus Christianam religionem amplexi sunt, et Episcopum acceperunt."† Philostorgius corrects Theodorus by substituting the name of the Emperor Constantius in place of *Anastasius*; in which he is right, unless it be admitted that the passage from Theodorus has reference not to the conversion of the Arabs under Constantius, but to the more complete one under the Emperor *Justin*, A. D. 525; when the Nejash of Ethiopia, *Elesbaan*, conquered the *Hamaiyar Arabs*. Considerable obscurity regarding the transactions of these two several periods exists in the history both of Arabia and Ethiopia.

Previous to this period, however it is evident from the Syriac annals of the Nestorians, and the Aden inscription, that the people of Southern Arabia, between the years A. D. 435 and 496, had seceded from the Christian creed of the Patriarch of Alexandria, and joined the Nestorians of Abadan. It also appears from the testimony of *Cosmas Indi-*

* See Assemanus tom. III par. secunda p. 599, where Nicephorus is quoted on the faith of Baronius.

† Theodorus Lib. II pag. 567; and Assemanus tom. III part secunda p. 600.

copleustes, A. D. 535, already noticed, that the churches of Southern Arabia were under the Nestorian Archbishop of *Seleucia*, in Persia: and that, long after the propagation of the Mahomedan creed, Christianity had not become extinct in Southern Arabia. Inscription No. 5 and the Nestorian Church histories bear evidence that *Zaccheus* was presiding there in A. D. 759. The whole of this hitherto unexplored region is full of interest to the Christian and Historian: and we sincerely hope that some of the officers of the Indian Navy may ere long, find opportunities of penetrating to *Mareb*, and laying open to the eyes of the European world, the yet undiscovered treasures of *Seba*.

ART. V.—*Geological Observations on the composition of the hills and alluvial soil, from Hydrabad in Sindh, to the mouth of the river Indus.* By H. J. CARTER, Esq., *of the Bombay Medical Service.*

On descending the river Indus from Hydrabad, it will be observed, that this town stands on the northernmost extremity of a small range of hills, which extend about twelve miles along the left bank of the river, rising from fifty to sixty feet above the level of the surrounding plain. They are characterized by their light colour, their sterile aspect, and their isolated position in the alluvial plain of the Indus, being separated, for a long distance, from the lower hills of the Hala range, which are on the opposite side of the river, and having no other high land visible from them in any other direction. In their form, there is nothing particular, excepting that they terminate above in a level plain, covered with loose stones, the petrified portions of a former superposed stratum, and their base having been washed at different periods by the waters of the Indus, may partly account for its irregularities.

They are composed of a cretaceous, marly deposit, interstratified with a semi-crystalline, fawn-coloured limestone. Towards their summit the marly deposit is white and cretaceous, and the limestone in horizontal strata of irregular nodules, abounding in marine fossils, but towards their base the limestone strata become thicker, and the marly deposit more plastic and yellow.

The structure of the limestone is semi-crystalline, of a fawn colour, and

an uneven fracture, or more or less filled with cavities, formed of the moulds and impressions of marine shells.

Though these hills abound every where in marine fossils, yet the fossils themselves are almost entirely composed of the internal casts of the shells they represent, the carbonate of lime being replaced by the mass in which they are imbedded. Of the most common that are found among the loose stones on the summit and sides of these hills, are specimens of large crustaceous animals, cephalopods, univalve and bivalve shells. In the collection presented to the Society, will be found the claw of a large crustaceous animal. Two specimens of Nautilus, and several univalve and bivalve shells, of which the most characteristic and most commonly met with, are represented in the accompanying plates. Independently, however, of these, there is a small ovoid fossil, formed of concentric layers, not unlike a grain of barley, both in size and shape, but rounded at each extremity, and grooved and ridged longitudinally, with the appearance of transverse lines across the ridges. On account of this little fossil being found in great abundance throughout these hills, it may be considered as particularly characteristic of their formation. It will also be found delineated in the accompanying plate.

Having left the range of hills just described, the river passes for some distance through its own alluvial plain, unbounded by any rising ground on either side, until it approaches Jerruk, when a number of irregularly scattered hills make their appearance on both sides of the river, some of which are conical and stand isolated in the plain, while others border on the margin of the river. They are of a deep ochre colour, horizontally stratified, and almost entirely composed of the fossilized remains of minute polythalamous shells. About half way between their base and summit, is a sandy stratum in which a small *Gryphæa* is found, resembling *G. virgula*, characterizing some of the upper Oolite formation in France. It differs from *G. virgula*, however, in being less elongated, less curved laterally, smoother externally, and more deeply carinated.* This shell appeared to be of much more recent date than the other organic remains, of which the rock is composed, both from its general appearance, and from not having partaken of the colour of the mass in which it was found im-

* The specimens of this shell were too much injured on arriving at Bombay to admit of being delineated.

bedded. At the base of these hills many veins of gypsum present themselves, irregularly traversing the rock, about an inch and a half in thickness. Specimens of the rock will be found in the collection presented to the Society, and some of the polythalamous shells, of which it is composed, are delineated in the accompanying plate.

After passing these hills, which extend along the right bank of the river for a few miles, the Indus winds its course through an alluvial plain of great extent, until it arrives at its exit, where its banks terminate in the low marshy land of that district.

Composition of the alluvial soil of Sindh in the neighbourhood of Hydrabad.

The alluvial soil in the neighbourhood of Hydrabad, is chiefly composed of a marly deposit, corresponding, in colour, composition and plastic property, with that of the adjacent hills; added to this there is a considerable quantity of mica mixed with it, and its dark stone colour is owing to the presence of an oxide of iron, and probably some carbonaceous matter. When exposed to the oxidizing flame of the blow-pipe, it becomes red, (thence the colour of the bricks of which the fort of Hydrabad is partly built), but on being mixed with charcoal and reduced, the marly portion becomes white, and the dark particles that remain, are attracted by the magnet.

Throughout the hills and the alluvial deposit for many miles round Hydrabad, there does not appear to be a single grain of quartz, although at Omerkote there is an admixture of chalcedony and agate in miliary grains to such an extent that it forms more than one-third of the soil.

In addition to the fossils in the hills round Hydrabad, there is a quantity of brown Hæmatite scattered over their surface, and it will be observed from one of the fossil shells in the collection presented to the Society, that this is originally formed in the centre of the fossils themselves.

Index to Plates VII. and VIII.

Fig 1. Lateral view of the internal cast of a Nautilus 12½ inches in its longest diameter.

a. Front view of the same specimen.

b. Section to shew the position of the syphon.

Plate VII.

Plate VIII.

Fig. 6.

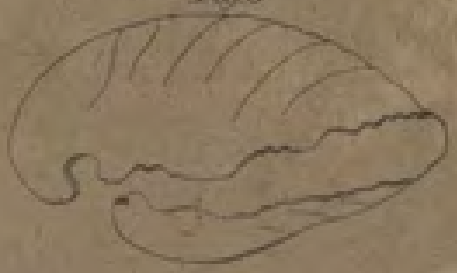


Fig. 9.

Fig. 7.

Fig. 10.

Fig. 11.

Fig. 8.

Fig. 12.

Fossils characterizing the Hills in the neighbourhood of Hydrabad & Jerruk in Scind

H. I. Carter del.

Hamptons Lith.

Fig 2. Lateral view of another specimen with round keel, 3 inches in its longest diameter.

a. Section to shew the position of the syphon.

Figs. 3, 4, 5. Internal casts of univalve shells.

Figs. 6, 7, 8. Internal casts of bivalve shells.

Figs. 9, 10, 12. Specimens of multilocular fossils, characteristic of the hills about Jerruk.

Fig 9. Specimen natural size. *a* Superficial view. *b* Section both magnified.

Fig. 10 Specimen natural size. *a* Superficial view. *b* Lateral view magnified.

Fig. 12 Specimen natural size. *a* Horizontal section. *b* Vertical section magnified.

Fig 11. Natural size of a fossil characterizing the hills in the neighbourhood of Hydrabad. *a* External view. *b* Section magnified.

Art. VI.—*Some desultory Observations on that class of Monuments, still extant in Scotland, called Runic Stones, supposed to belong to an age anterior to the date of the earliest writings treating of Scottish history; with a catalogue of some of the most remarkable of the Stones now extant.* By Geo. Buist, LL. D.

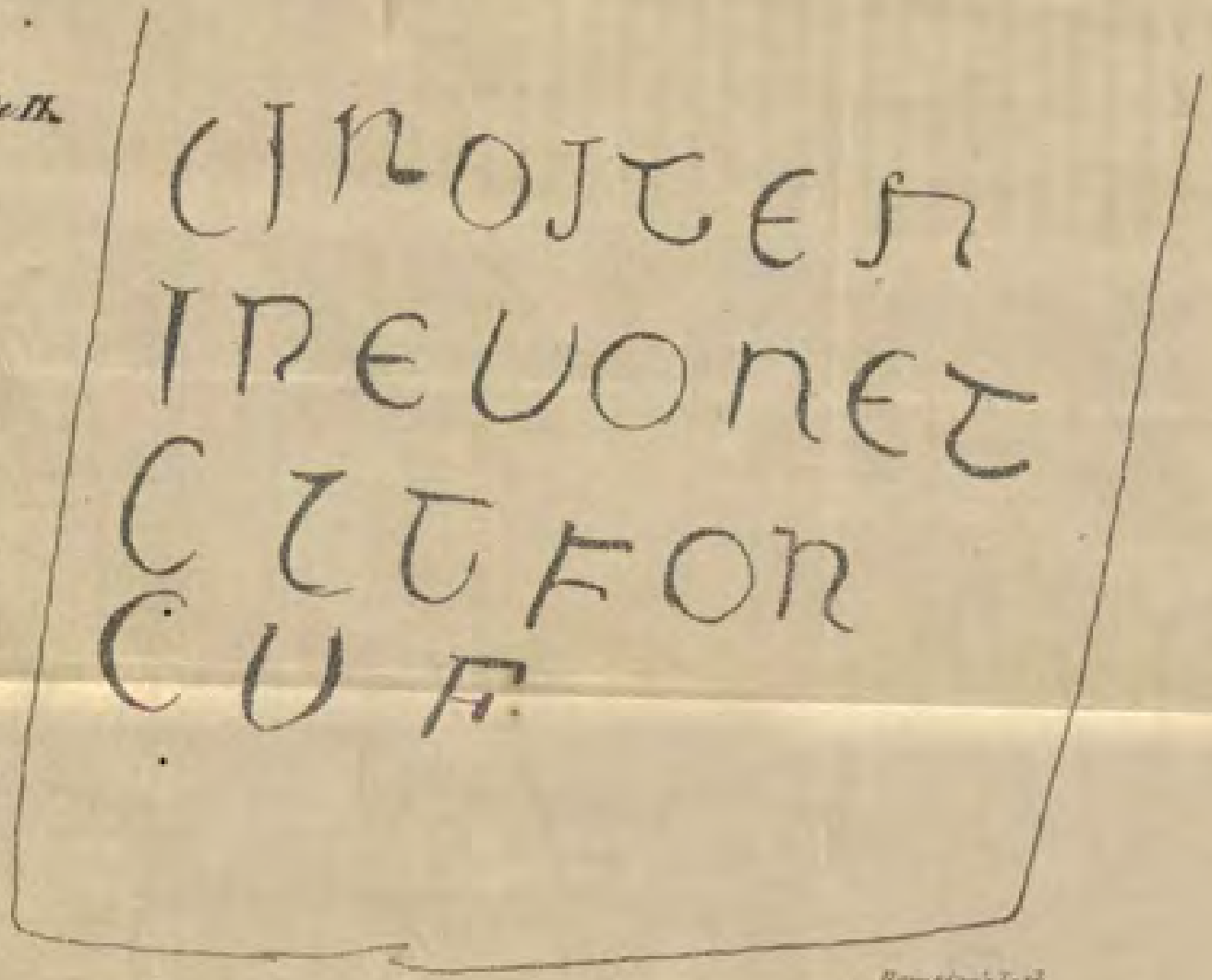
[The following paper was drawn up many years ago, but permitted to fall aside. It was laid before the Society as connected with oriental antiquities, with a view to its remaining for reference in their archives, but without any idea of its being printed in their transactions. It is now by desire of the Society published as presented: the want of books of reference and the numerous avocations of the writer depriving him of the power of removing its imperfections by correcting or recasting it as he could have wished.]

Runic Stones.—A designation promiscuously applied to two very different and dissimilar classes of relics, the origin of one of which is probably attended with as much mystery and interest, as any thing which has occupied the attention of the antiquary. We shall reserve the consideration of the first of these, till after we have shortly noticed that class of monuments, entitled to the designation of true Runic remains, these being distinctly attri-

butible to a Danish origin. Olaus Wormius, a learned Dane, in a work entitled "Danicorum Monumenta," London 1643:—and Kysler, in a work entitled "Antiquitates Septemtrionales," published in Hanover in 1720, fully treat of the real monuments of Denmark, and give us representations of those in innumerable illustrations. They generally consist of very massy and large blocks of stone hewn into the form of crosses, or on which a cross, and in this case generally the Maltese cross, is sculptured. Besides these, strange and fantastic groups of men and of animals, with many monstrous representations of incongruous creatures, are presented us. The serpent is a prevailing emblem, while the human figures are often provided with the heads and feet of animals, or the wings of birds. The Centaur, as delineated in classic sculpture, is not unusual, and the most singular and intricate interweavings of unintelligible tracery characterize the whole. These monuments seem to abound in Denmark and Norway; they are usually inscribed with Danish or Icelandic characters, the legends merely intimating that they were erected by such a person in honour of some friend or relative. A good specimen of this class of stones, was some years ago sent from Sweden for the use of the Scottish Antiquarian Society, and is now placed on the castle hill of Edinburgh. The scroll in this case, as in many other similar ones, is formed by the waving grooves which define the outline of the serpent. Another class of true Runic monuments with inscriptions, is found in the Isle of Man and in other places in Britain. A collection of very beautiful and apparently accurate drawings of these, by Mr. Oswald, was published in the Transactions of the Antiquarian Society of Scotland, for 1822. In many points, they greatly resemble the crosses about to be described in the latter part of this paper. The form of the cross itself is the same, and many of its concomitant ornaments are similar, as are the monstrous representations of men and of animals with which they both abound. But the Manx crosses are all inscribed with characters closely allied to the modern Icelandic, not one of which is ever to be found on the other class of relics; and the singular, symbolical characters, as well as the picture writing with which the latter often abound, and by which they may at all times be distinguished, are wholly wanting in the former. They are ascribed to the middle of the 10th century. The celebrated Ruthwell stone is worthy of a separate notice, though it probably belongs to the same class as those of the Isle of Man. It has been minutely described by the Rev. Dr. Duncan of Ruthwell, both in the Antiquarian Tran-

Plate IX.

St Nigeans Stone.



Rampton's Lith.

Full sized Fac-simile of the inscription on the edge of the St Nigeans Cross

sections, and the new Statistical Account (No. III, 1833). It seems to have been an erection of different periods, and by different hands. It is now in the form of a cross. Besides the decorations, images, and emblems which adorn it, it is covered at the borders round the compartments, in which they are contained, with inscriptions, partly in Latin and consisting of scraps from the Vulgate version of the New Testament, so that the whole of them can be easily made out, despite of mutilation. The characters are partly of Runic, differing, however, widely from the Norse or Icelandic used by Danes, and nearly identical with that of the Exeter manuscript noticed by Hicks, in his Thesaurus, and generally admitted, as that commonly characterized as Anglo Saxon. This monument, though formerly neglected, is now very carefully preserved. It was first figured and described by Gordon (Iter Septentrionale, p. 160: London 1726); who alludes to the singularity of the two varieties of inscription, and it was subsequently noticed by Pennant, Chalmers, and Hicks. Repp ultimately was able to make out and decypher the Runic portion of the inscription.

The class of monuments to the description of which we propose addressing ourselves, is widely different from the above; with which however, they have been mostly heretofore confounded. They are confined to one or two localities only; in these they are abundant, and may be yet found to throw light on the dark and mysterious portions of the annals of these countries, which doubtless enacted a distinguished part in the early epochs of incipient civilization, but the written records of whose history have utterly perished. Of the monuments of which we speak, there are probably not fewer than two hundred now extant in Scotland; and at no very distant period perhaps twice this number existed; there are at least twenty or thirty in Ireland; but there does not appear to be one in England, in Wales, or in any other part of Europe besides. In this mysterious feature of their history they agree with the celebrated round towers, of which there are two in Scotland, sixty one in Ireland, and so far as appears (notwithstanding the assertions of O'Brian, on both subjects to the contrary) not one in any other known portion of the Globe. In infinitely the greater number of cases, these monuments consist of large upright blocks of stone from 3 to 25 feet in height; (the only example of the latter stupendous dimensions being Sueno's pillar near Forres,) covered with rich and elaborate carvings, and in most cases, besides these, representing in low relief a cross of Calvary or being them-

selves cruciform. There are, however, numerous cases wherein the stone is impressed with a few rude but characteristic symbols without symmetrical or intelligible sculpture; and a number, smaller still, where a richly sculptured sarcophagus, which those of Egypt scarcely rival, takes the place of the symboled monolith. In early ages, when written characters were little known and still less resorted to for ordinary purposes, the simple and natural practice of pictorially representing notable events, formed a convenient and universally intelligible substitute, for writing; because it appealed to a power of discerning the connection betwixt an action or series of actions, and their detailed similitudes possessed and exercised by all. This was the natural source of picture-writing, and a parallel case seems to have brought language itself into existence. It was the practice in early times, to detail on the monument of a warrior, the leading characteristics of his life, and hence, most probably, the source of those richly and elaborately detailed scenes represented on most of the monuments under consideration, and which in all probability, were, while understood, pictorial biographies of those for whose sake they were erected. It must at once be admitted, however, that very many of these carvings receive no elucidation from this view of the matter, and that the exotic or monstrous animal forms, and the mystic combinations of these which we observe, (amongst which, however, some system manifestly prevails,) are in the present state of our information, totally inexplicable. The fact of the abundance of tropical animals, as the lion and the monkey, so conspicuously detailed on the St. Andrew's Sarcophagus, and to be found on many other stones besides; of the elephant on Sueno's pillar, and apparently in a disguised form on a vast proportion of other monuments,—and represented according to O'Brian not on the crosses alone, but some of the round towers, (as that of Brechin for instance which has been well noticed in the pictorial history of England,) is beyond measure singular.

The existence of purely classical sculpture amongst the ornaments, and of classic monsters, as in the Aberlemno Centaur; and of symbols so strikingly Egyptian as that of Essie cross, is another feature of extraordinary mystery. The most characteristic figures of these stones, however, are those of a set of monstrous looking creatures, such as the lizard-like animal, on the St. Medoes cross (vide Fig.) the interwoven serpents with two, or a multitude of heads, and occasionally complicated limbs; and which are always systematically intertwined

with each other, like the warp and woof of a web (of which the corner stone of the St. Andrew's coffin furnishes an example);—the long eared, long billed, cockatrice-looking creature; and above all, an animal probably meant to be a representation of an Elephant, though it would be difficult from its distortions, to point out to what class of actual living creatures it was meant to be considered allied. In fact, whenever the simple emblematical picture is departed from, the whole remaining animal images on these stones are invariably monstrous. It is singular that the purely symbolical figures are specially alluded to by Boethius, and have scarcely ever been noticed by any subsequent author "Boethius, is willing" (says Pennant) "that these engraven pillars should be supposed to have been copied from the Egyptians, and that the figures are hieroglyphic or expressive of meaning, as those found in the cases of mummies and sculptured obelisks of Egypt. The historian's vanity in supposing his countrymen to have been descended from that ancient nation is destitute of all authority, but his conjecture that the figures we so frequently see on the columns of this country, had their signification, and were the records of an unlettered age, is so reasonable as to be readily admitted." In this case the acute and observant traveller's censure is much more liable to criticism, as we shall afterwards more fully see, than the hypothesis of the able, but unfortunately unauthentic historian.

The symbolical figures, by one or more of which nearly the whole of the monuments under consideration are characterized, and the few which want them may be readily identified by their style of carving, are 1st a zigzag, ornamented at both ends with sceptre heads. Fig. 1st—Pairs of circles of

Fig. 1

Fig. 1

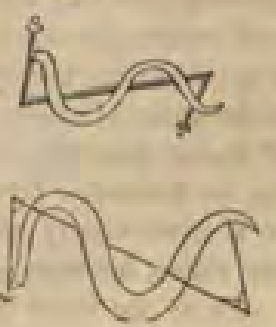


Fig. 2 Fig. 2 Fig. 2

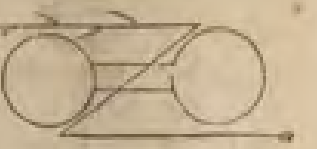
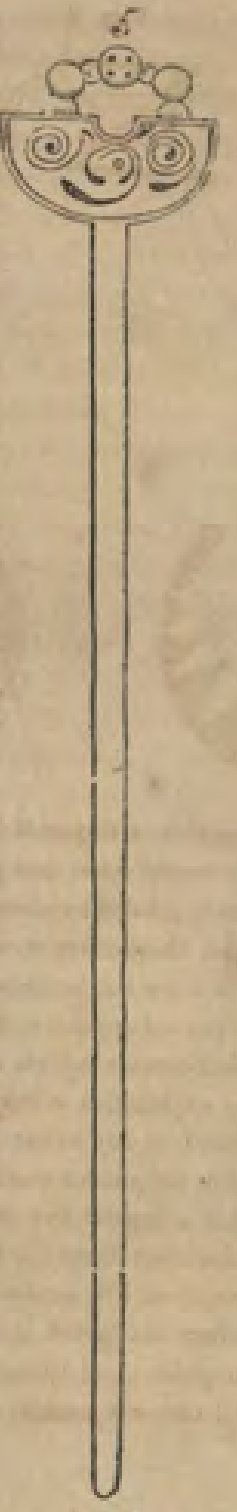


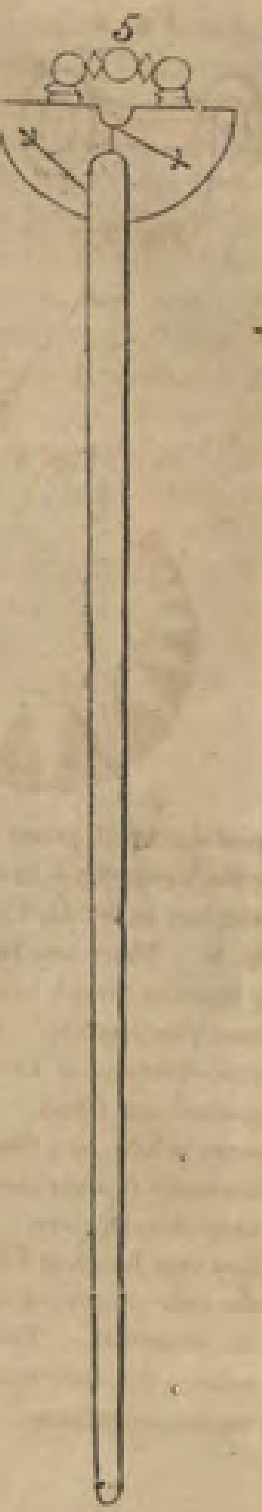
Fig. 3

Fig. 4.

Fig. 5 Fig. 5

equal size fig. 2, joined together with parallel bars, and frequently divided by the zigzag fig. 1, or of unequal sizes, and joined by a single perpendicular bar, as fig. 3. A lunette divided by a something like a broken sceptre fig. 4. There are besides these other mysterious figures very generally found to prevail, but which are not so universal or uniform as to become characteristic. It does not appear, so far as the various published representations of the Irish crosses inform us, that amongst them these symbols are found. No explanation worthy of a moment's notice ever seems to have been thought of by any writer on this subject; and it is not meant that any should in the present want of information be here attempted to be given. It is a singular fact that at a place called Norries Law near Largo, in Fife, there was found (in 1819) a splendid suit of silver scale armour; of which about 180 ounces went to the melting pot of the silversmith. The helmet was barred and morrioned, and was quite entire:—the shield was triangular, about 10 inches by 14, and covered with mysterious emblems. All that now remains of these singular relics, are





7

1
6½ In.

2.
6½ In.

3

3

the supposed armlets or collars, the scale or broaches, a bodkin, and finger ring represented below. Of these, a bodkin and a scale or clasp contain a most distinct and minute engraving of figures 1 and 2 of the Runic stones! What are we to make of this? Silver armour could at no time be employed as an available defence, and must have only been used on occasions of state. We have no reason to believe that within the period of authentic Scottish history, the abundance of the precious metals, or the tastes of our ancestors, were such as to lead us to look, under any circumstances, for vestures so expensive. Were the habits of those of an earlier age more luxurious? Nothing can be more gorgeous than the attire of some of the figures on the St. Andrew's coffin. Does the occurrence of the symbol on the Largo armour, warrant us in assigning it to a period co-eval with the crosses? Or may it have been a copy of a symbol, whose revered mysticism remained throughout later ages? To none of these questions will the cautious antiquary venture to give a confident reply. This much we know, that on this class of monuments, and on the Largo armour, alone have the symbols 1 and 2 ever been known to be found. The excellence of the work of the bodkin and finger ring could not be surpassed in execution by any modern silversmith. At the time the present paper was drawn up, the writer had never seen the common silver collar worn by the natives of India: a representation of one of these is here also given; it corresponds, in form so exactly with the portions 1 and 2 of the armour as to leave no doubt on his mind as to the identity of their uses. The only difference betwixt them is, the one opens before, the other behind; it is not at all unlikely that this may arise from alterations afterwards made on it.

The symbol represented in figure 4, is perhaps still more frequent in its occurrence than the preceding. It bears a singular resemblance to the mysterious relics so often found in Ireland, of which the following figures are given by O'Brien, who describes it as an emblem of the sacred ships of the Buddhist worship.* "These semicircular implements, Ledwitch (quoted by O'Brien) acknowledges to have created more trouble to antiquarians, in determining their use, than all the other antiquities put together."

The cross however is of all the characteristics, far the most uniformly present; and is indeed wanting in only a very small proportion of them. O'Brien points out that this is by no means a purely Christian emblem; but has been generally and extensively employed in the East, either before the incarnation, or where Christianity was unknown. It is certainly a remarkable fact, that in no case we have ever seen or heard of, is a crucifixion detailed on any of these monuments, at the same time the cross is so uniformly and distinctly of the form of that called, the cross of Calvary, that we have no doubt of its being Christian.† It is generally surrounded by an ornamented circlet or halo; its shaft and transepts are covered with minute and elaborate carving, while some special enrichment commonly adorns the point of the intersection, or the extremities of the arms. It stands in relief from ½ an inch to 3 inches according to the character of the stone. In these cases where the whole stone is cut cruciform-wise, as is frequently the case in Scotland, and still more so in Ireland, the general character and ornaments are the same as in the stones where reliefs are represented. The general character of the ornamental carving is so peculiarly marked or distinguished, that when any or all of the emblematical characteristics, above referred to, are awanting, it is quite adequate to indicate the class to which the stone belongs. The fret work represented on the shaft of the St. Madoe's cross is the most frequent variety of enrichment. Next to this in abundance, and before it in characteristicness, are the reticulated entanglements often occurring by themselves, and into which the convolutions of serpents, the tails of animals or other

* The figures referred to have, by a mistake been placed in a preceding page.

† Since the above was written, I have seen in the British museum the restore of a Coptic priest on which the cross of Calvary is painted precisely as represented on the cross stones. Its wearer, as has been ascertained from contemporary Egyptian relics, must have flourished about the sixth century before our era.

flexible delineations, are invariably interwoven. It will be observed, (and the end pannels of the St. Andrew's stone coffin afford an excellent illustration of the fact,) that however absurd the effect produced may be, that they are always interlaced like oziers in basket work, or the warp and woof in a web; the upper and lower mandibles of a bill being made to bend alternate-wise at the sculptor's pleasure, so as to conform to the rule, however unnatural it may look for the figure represented, or inconvenient it might be for the animal if alive. The style of the carving, thus minute and elaborate, is remarkably indicative of an extremely early and rude state of society. So far as the intellectual part of the artistship is concerned, there seems to have been no adequate draught or plan of the sculpture previously prepared. It is manifest that one portion of the figure had often been cut out without any due consideration of the room required for the remainder, or the position or proportion to be assigned to it; and the consequence is, that while a head, for example, is represented of an exaggerated size or shape, the body or limbs are huddled together in whatever extent of space happened to be left for them uninvaded by previous carving. To this, however, the cross, which is always drawn with remarkable symmetry and precision, is an exception; as also, but in a less degree, are the leading emblems:—the picture department, which, from this, we may suppose was considered the least important, suffering chiefly from distortion. Connected with this, is the remarkable fact, that the blocks or slabs, from which these monuments were made, seem very rarely to have undergone such a preliminary process of preparation, as would, in more refined times, be reckoned essential for the most ordinary piece of hewn work, much more for ornamental sculpture. The stones resemble, as nearly as may be, well-formed blocks, carved just as taken from the quarry. Where "wants," or irregularities occur, they are rarely squared off or cut away, but the outline of the carving is made to accommodate itself to the irregularities of the stone. The St. Andrew's coffin, so often referred to, affords in another way a remarkable illustration of the same class of facts. Though very elaborately carved, and most likely an object of great veneration, no provision whatever has been made for jointing, cementing, or bolting together the pieces of which it is composed: they, on the other hand, are furnished with rude, but strong elongated tenons, to be inserted doubtless in the floor or pedestal on which it stood. It must be added that a style of ornament somewhat similar to this, and pro-

bably imperfectly copied from it by later sculptors, prevails on monuments of a different class and more recent date. Of these Olaus Wormius, Kysler and Saxo (edition by Stephanus) furnish us with examples of the true Scandinavian stones; while the stone of lamentation and crosses of Iona and Oronsay, as represented by Pennant, and whose antiquity does not probably exceed 400 years, contains a similar style of carving. On three of these stones only have inscriptions in written characters been traced; none of them have ever been interpreted. The characters are all different from each other, belonging apparently to dissimilar alphabets. Of two of these Mr. Stewart says,—"The inscription of the Newton stone, Aberdeenshire, has already been submitted to several eminent antiquarians, none of whom have been able to decypher or explain it. The late General Vallancey, the celebrated Irish antiquary, pretended to have read the two words Gylf—Gomarra, but professed to be unable to proceed further. On the Fordoun stone is found what appears to be alphabetical writing, but so entirely defaced, that not a single letter is now distinctly legible." It seems doubtful whether the Newton stone belongs to the class of monuments under discussion, and the inscription on that of Fordoun, which is otherwise extremely well marked, seems to have been engraven *after the sculpture of the stone itself*, part of which appears to have been hewn off to make way for it. It is very doubtful, indeed, whether any authentic case exists, of an alphabetical inscription on any of these monuments. That on the St. Vigean's cross has most the look of authenticity. The letters seem a combination from the old Irish and Anglo-Saxon alphabets as represented by Foshrook (Encyclopedia of Antiquities) and O'Brien (Irish Dictionary). It may, however, have been an after-thought and no part of the original sculpture. The number of these crosses believed to exist in Scotland at present, is about 200; and when we consider, that for a period of about 600 years, they have ceased to be objects of reverence; and had a protracted war of destruction waged against them, which their solidity, compactness, and general fitness for building materials greatly encouraged; that in our own day, with all our boasted refinement and love of archæological research, dozens of them are perishing unheeded before our eyes; we probably do not greatly exceed, when we say, that perhaps not less than thrice this number existed, when the full reverence which occasioned their erection was accorded them.

Plate X.

Hamptons Lith.

ABERLEMNO Forfarshire.

This Stone together with those at Cross Town and Camus Cross are said to commemorate the defeat of the Danes 847.

The following imperfect catalogue of those we have seen or inquired after, may help to guide the student, as to authorities and subjects of examination, and may by calling to it the attention of the public, help to stay the progress of dilapidation to which this class of our earliest and most mysterious antiquities are at present being exposed. The works chiefly referred to, are the Itinerarium Septentrionale, by Alexander Gordon, A. M., Edition, 1726. Remarkable Ruins and Romantic Prospects of N. Britain, &c., by the Rev. Charles Cordiner, Banff, 2 vols., 1788. Pennant's Tour, 1790. Observations on several monumental stones in North Britain, by J. Logan; F. S. A., Edin., with 14 engravings, London Archæologia, 1827. The illustrations of this paper seem carefully and correctly drawn and engraven. An account of some sculptured pillars, &c., by John Stewart, of Inchereek hill, Gr. Prof. Aberdeen: Trans. Scoth Antiq. Soc. Vol. 2, &c. &c.; and the unpublished collection in the possession of the present writer, who has been for years engaged in endeavouring to elicit information, by comparing with each other carefully drawn representations of these monuments—information concerning which is still a desideratum in archæology.

The engravings of Gordon are, as specimens of art, extremely rude and defective, but tolerably correct so far as they go. Cordiner's are defaced with the abomination of affected ornaments to an extent which makes them utterly worthless as references. Pennant's are occasionally good: they seem to have been taken by his servant, without the superintendence of the traveller himself, and are occasionally quite unworthy of trust. The drawings of Logan and others in the Archæological and Scottish Antiquarian Transactions, seem faultless; as also are those in the new Statistical Account. To save space in references, the name of the author alone is given in the subjoined list.

ABERLEMNO, FORFARSHIRE:— described by Boethius and Buchanan, figured by Gordon, Cordiner and Pennant, and in unpublished collection. The stone is in good preservation. It is situated at the west end of the parish church, apparently deeply immersed in the ground:—Described by Stewart.

ABERNETHIE, PERTHSHIRE:—Two rude blocks of trap, very characteristically figured; dug from the foundation of an old house in 1830.—Unpublished collection.

AULDBAR, FORFARSHIRE:—a very well preserved cross. It is mi-

nately described by Pennant, who did not profess to have seen it. There is no published drawing of it. From 1778 it seems to have been utterly lost sight of. It was in 1832 dug from under a heap of rubbish, as something then for the first time discovered. It is now carefully kept at Auld Bar castle.—Unpublished collection.

Balkello, Forfarshire:—6 miles north of Dundee; mentioned by Gordon;—stone broken, and much injured.—Unpublished collection.

Balkourie, near Meigle Forfarshire:—a large but rude block, with sculpture, (No. 2) and other half effaced characters, without a cross.—Unpublished collection.

Beaulie in Rossshire:—a cross described and figured by Cordiner.

Benvachie Gairioch, Aberdeenshire; figured and described by Gordon and Cordiner, more accurately by Logan, Archæologia, called Maiden-stone, defaced on one side.

Camus Cross, Monikie, Forfarshire:—a large cruciform stone in good preservation, were it not so thickly covered over with lichens: described by Boethius, Hollingshead, and Buchanan, as the funeral monument of a Danish chief, slain 845; figured by Gordon, who gives a description from the Latin MS. of Commissary Maule, 1600.—Unpublished collection.

Crail Slab:—in the church floor, sculptured only on one side; no published description—discovered 1837.—Unpublished collection.

Crieff Cross of Perthshire:—figured, in Trans. Scot. Ant. 1821, very much mutilated; stands in the centre of the village as a market cross.—Unpublished collection.

Cossens—near Glamuis, Forfarshire;—cross, described and figured by Gordon—described and called St. Orlan's Stone in the new Statistical Account. Unpublished collection.

Cross—Town, Aberlemno, Forfarshire:—One very superb cross and two lesser ones in perfect preservation, close by the side of the Forfar and Brechin road; the same group as that at Aberlemno. These stones have always been objects of attraction to antiquaries. Drawings (incorrect as usual) are given by Gordon, Cordiner and Pennant. — Unpublished collection.

Callage, Perthshire:—a fine stone not any where described.

Creich:—"There is an obelisk near the church of Creich in Sutherland, 14 feet high by 4 broad, richly sculptured, and said to be the

burial place of a Danish Prince."— Chalmer's Caledonia, vol. 1 p. 466. This is nowhere else described, that I am aware of.

DOGTON, Kinglassie, Fife :—A broken cross described and very correctly drawn by Pennant; called Doetan, described in new Statistical Account;—Unpublished collection.

DUNNICHAN, Forfarshire:—A rude, but well marked stone, described by Gordon, now built into a park wall.

DUNKELD, Perthshire.—Two large crosses mutilated, used for many years as gate posts, stood neglected at the door of the Cathedral; one of them turned upside down.—No published account of: unpublished collection.

DUPLIN, Perthshire:—A fine cruciform stone quite entire, described by Pennant and Gordon.—No published drawing.—Unpublished collection.

DYKE, near Forres in Moray:—Cordiner gives a drawing of.

DYCE,—church, of figured by Logan; in good preservation. Archæologia, 1827.

EDDERTON, in Ross-shire:—"There is another obelisk which is 10 feet high, with carved figures, which stands in the parish of Edderton in Ross-shire." It is said by popular voice to be the monument of a Prince of Denmark, who, having fallen in battle, was interred there. Chalmers's Caledonia, Vol. I. p. 466.

ESSIE, Forfarshire.—A very richly carved cross near the old church yard. It is figured and described by Cordiner, 1780. Like the Auldbar stone, it seems to have been broken, carried away and lost sight of, till it was exhumed and re-erected by the parish clergyman, about 20 years since.—Unpublished collection.

ELGIN, Moray.—Only one side of the stone visible, the other built into the church wall; well represented by Logan. Archæologia, vol. 22.

FAR.—"At the church of Far, Sutherlandshire, there is a sculptured stone, said to be the monument of a Danish Chief." —Caledonia, Vol. I. p. 466.

FORDOUN, Mearns-shire.—A finely preserved stone, dug out beneath the old parish church, accurately represented by Professor Stewart of Aberdeen, and described by him as "probably a monument erected to the memory of Kenneth III., who is said by Fordoun, Wintroun, and Boethius, to have been murdered near Fettercairne, A. D. 994, by Fenella or Fenelli, in revenge for the loss of her son."

FORRES—*Sueno's Pillar, near Forres*, is the most remarkable of

these monuments, both for its magnitude and the richness of its sculpture. It is situated between Forres and Elgin, and is 25 feet in height, and 4 in breadth at the base. It has been badly figured by Gordon, Cordiner and others. It contains on one side a cross, on the other the usual pictorial sculpture. I have not examined this obelisk, and the published engravings on it are so discordant and manifestly unfaithful, that no reliance can be placed on them. It *seems* to belong to the class under review, but the usual emblems appear awanting, though the general sculpture is characteristic. It has always been assigned to the Danes, and known indeed as a monument of the chief Sueno, who, it is said, was here defeated and slain. Boethius is the earliest writer who treats of it: in which he is followed by Buchanan, as well as by Gordon and others — "This stone is supposed, probably erroneously, to have been erected in commemoration of the Scottish victory" (say the writers of the Pictorial History of England): "but what can we make of the Elephant by which it is surmounted?" The cut given by them as well as by O'Brien (Round Towerses), is taken from Cordiner's engravings.

Fowlis, Wester, in *Perthshire*.—There is a very fine cross, with, on the opposite side, a religious procession. Mr. Gough (Camden, Lond. 1789,) states, that this has not been noticed by any preceding writer. It is of one stone 11 feet high. It is mentioned in the new Statistical Account as "being commemorative of a wolf hunt, where the wolf, being pursued through a village, snatched off the head of a child." As improbable a theory as can well be conceived.—Unpublished collection.

Glamis—*Opposite the manse door*, figured by Gordon, Cordiner and Pennant; described by Boethius, and Buchanan, (nearly all subsequent writers following them,—as a tombstone commemorative of the murder of Malcolm II. Anno 1033. It is 10 feet high, and 5 broad at the base. There is a similar stone within Glamis Parish, and another at the village of Cossens near by, (*vide* Cossens) all ascribed to the same source. —Unpublished collection.

Inverkeithing—figured and described by Gordon, noticed in Statistical Account, considered Danish by both.

In Vermay Perthshire within the inclosures; noticed by Gordon.

Kinkardine, *near Auchterarder*, Perthshire. Stone in good preservation; no published description.

Kinnellar *churchyard, Ross-shire*. Logan. Archæologia, XXII.

Largo Fife.—A small but well marked cross, just behind Largo house. The one side is concealed, being built into the court yard wall.—New Statistical Account.—Unpublished collection.

Lindores, *Fifeshire.*—On an eminence called the Kaim hill of Lindores, near Newburgh, there is a rude block marked with the symbols 1 and 2. Its genuineness is doubtful.—Unpublished collection.

Mains of Strathmartin, *Forfarshire.*—In the Schoolmaster's garden wall, supposed to be of this same class, carving uninteresting, without characteristic symbol.—Unpublished collection

Inchture, Forfarshire.—What seems a fine cross but of small size. The ornaments of one side concealed. Forms the step of a stair leading to the church-yard.—No published account.

Meigle.—A splendid group, consisting of two superbly carved stones with crosses, and a great many sculptured blocks and slabs, which may probably have formed the sides, end, and cover, of a sarcophagus, like that of St. Andrew's. Boethius, Buchanan, and W. H. Maule in his MS. history of the Picts, described these as monumental stones to a Queen Venora or Fenella, and are followed by most other authors. She is said to have been torn to pieces by wild beasts, for her murders and adulteries, about the 9th century. She is said by others to have been the wife of the celebrated King Arthur. "Perhaps the carvings on these stones," sagaciously conjectures Gordon, "as it sometimes happens, may have given rise to this conjecture; they are all carefully kept and in good preservation."—Unpublished collection.

Mugdrum, *near Newburgh*, Fife.—A large but rude block described by Camden, Gordon, and Pennant, correctly figured in the new Statistical Account of Fife; erroneously there and in Swan's Views of Fife, connected with MacDuff's cross.—Unpublished collection.

Monifieth, *Forfarshire.*—A sculptured but well preserved fragment, built into the church wall.—Unpublished collection.

Mortlach, *Aberdeenshire.*—A large stone figured by Logan. Archæologia, vol. XXII.

Newton, *Ross-shire.*—A very rude but well marked stone, referred to by Logan. Archæologia, XXII.

Nigg, *Ross-shire.* "There is a similar stone to that of Standwick—in the church yard of Nigg, which tradition also assigns to the Danes." Chalmers's Caledonia, vol. I., p. 466.

Pitmeirs Cross, *Forfarshire.*—Broken over by the transept, very much defaced; seems to belong to the Aberlemno group.—Unpublished collection.

Pitnaffie, *Aberdeen-shire.* * * * *

Ruthven, *Banff.*—Rudely sculptured and much defaced.—Logan; Archæologia.

Rhynie Muir, *of Aberdeenshire.* Two large stones, one 2 feet by 10, the other 1 foot by 9; both figured by Logan. Archæologia: with two others—dimensions not known.

St. Andrew's, *Fife.*—In digging a very deep grave in the Cathedral yard of St. Andrew's, a little north of the celebrated square tower, in 1833, a large slab, sculptured with hunting scenes, and the figures of men on horseback, of lions, asses, and other animals, was met with, together with a variety of other fragments; they were for sometime tumbled about, broken and partly carried away; the present writer, from the character of their carving, at once pronounced them to be the fragments of a magnificent stone coffin belonging to the same order of monuments as that under discussion. The Rev. C. Lyon, a zealous local antiquary, immediately caused search to be made for other fragments pronounced to be awanting; a considerable number of which were found in 1836, and had correct drawings very carefully taken of the pieces most entire. When put together, it proved to be a most elaborately carved Sarcophagus; the one end and a portion of the side and corner are all that are awanting (Vide plate fig.). To the scandal of the oldest university in Scotland, this most interesting relic is still tumbled about in pieces without the smallest consideration or regard. A portion of it is figured, from the drawings of Mr. Lyon, in the Pictorial History of England; in which however it is incorrectly described. Dr. Dibdin having carried a piece of this stone away with him, has it correctly represented in his 2d. vol.; he considers it as early Saxon.—Unpublished collection.

St. Madoes, *Perthshire.*—A monument very rudely sculptured on one side, but extremely rich and variegated on that on which is the cross. This is in a state of fine preservation; more for the good fortune of the cross than the credit of the local antiquarian taste, it lies buried in the soft earth of the church yard; whence its repose was first disturbed in 1835. It has not, so far as I am aware, been noticed by any antiquary.—Unpublished Collection.

Plate XI

Fig 1

St Andrews Stone Oxford

Fig 2

STANDWICK, *Ross-shire*—A fine cross, figured by Cordiner, copied and commented on by O'Brien (Round Towers). Chalmers says of this, "At Standwick, in the parish of Nigg, on the east shore of Ross, there stands an obelisk with the sculptures of hearts and a cross; and here tradition accounts that the three sons of a Danish King were interred." Caledonia; vol. I. p. 466.

WICK. "At Wick in Caithness there is a monumental stone with hieroglyphic characters, said to be the monument of a Danish Prince." Chalmer at Sup.

From the extent of country over which these relics prevail, comprising the whole eastern and midland parts of Scotland, from the Forth to the northermost part of Caithness; and from the perfect uniformity, under whatever designation they may pass, or whatever history tradition may assign them, of their carvings, style of sculpture and hieroglyphic symbols, we seem perfectly entitled to draw this one inference at least, that the whole of these monuments are of one class, and had the same general set of objects in view: that they were erected under similar circumstances, and when the same general customs and mode of sculpture prevailed amongst all their erectors. As we have no recorded statements of any thing peculiar in this way ever having prevailed in Scotland, we seem entitled either to suppose the period of their erection anterior to the existence of written history, or even of distinct tradition; or, to assume that the custom of raising these sculptured crosses was but of brief duration; otherwise we could hardly fail to have some notices of a thing so remarkable either by the contemporary writers of other countries, or as handed down by tradition to our own. Vague as these conjectures are, they are all which we are entitled to form, from the facts before us, as to the date or mode of their erection. We cannot concur with the idea of O'Brien, that they are older than the Christian era.* The crosses which he makes out to have existed as religious symbols before the Christian era, or to be found at present in heathen countries as religious symbols, bear no resemblance to those on the sculptured stones, which are uniformly of the shape designated "The Cross of Calvary" in heraldry. It is worthy of remark at the same time, that in no single case of a well marked monument of the class, do we find the representation of a crucifixion. The case of

* This observation, though correct as concerns the drawings and description of O'Brien, requires to be received with some modifications.

the goodly Baru-stone, near Perth, would be an exception to this could it be proved to belong to this class of relics: but though in general form and aspect it resembles them, its sculptures are so defective, that, differing from them as it does in this most characteristic particular, I have left it out of the list. Nor is it possible they can have fallen much within this era. Fordoun, who wrote at the close of the 14th century, does not notice their existence, and to we must therefore assume them to have been considered by him of no importance. The same thing holds of Wintoun, who wrote nearly contemporaneously (1420), though there is every reason to believe quite independently of Fordoun. By the time of Hector Boece, A. D. 1500, the more remarkable groups of them seem to have attracted attention; but authentic tradition was as silent regarding them as at present, and the ideas of their describers as cloudy as are those of the antiquarians of our own time. For the history of Scotland by contemporary writers, before the time of Fordoun, we must go beyond the boundaries of our native country and rely on English or French writers, who, though less copious than might be desired, seem to have devoted no little consideration to our affairs. The line of these from the time of Bede in the 6th century, is tolerably continuous. The utter silence of the whole of them in reference to a set of monuments whose existence must have been matter of national importance, and which must themselves, for a long period, have been subjects of deep national reverence, implies, that since the year 500, they have neither been erected nor greatly reverenced. We have from an architectual fact, an indirect evidence of their very great antiquity. The church of St. Vigeans, near Arbroath, is known to have been built considerably before the Abbey of Arbroath, which was founded by David I. A. D. 1200. In the wall near the foundation of the north transept, we find one of these monuments used as a common building stone and luckily not defaced. It is apparent from this, that before 1200, these relics, the elaborateness of whose carving, irrespective of the greatness of their number, proves the deep and long enduring reverence which must have been attached to them, had lost all consideration in the eyes of even the priesthood, or had fallen into utter disesteem. Assuming, then, that the emblem of the cross brings them within the limits of the Christianization of Scotland, and that the silence of English, and ignorance of Scottish, historians, as to the true theory of their erection, carries their date beyond the 6th century, we shall obtain a set of conditions very concordant with

each other, to give us a plausible conjecture at least on this mysterious subject. We are disposed to assume, that while these monuments might commemorate the death, or mark the spot of interment, of eminent individuals, that they were also objects of religious worship—in fact monolith shrines. They prevail all over the ancient Piet land, and hardly beyond it. We have every reason to believe, that, about this period, a colony of Irish became located in Scotland, who would, as a matter of course, bring their habits and customs along with them. "The existence of the celebrated Round Towers in these two districts alone on the face of the earth, is a striking proof of their early connection; and though the perfect identity of the sculptures on the crosses in Scotland and in Ireland has not as yet been so thoroughly established as have the characteristics of the Round Towers, their similitude is so extreme and their existence so remarkably adstricted to these two countries, of the history of this period of peculiar darkness.

The sacrificial processions on various of these monuments—on that of Fowlis Wester in particular,—as well as the representation of other religious ceremonies, seem to point to Pagan observances, then last being obliterated by the prevailing creed. On the coffin at St. Andrew's, and on the crosses at Duplin and Auldbar in Scotland, and on that of Kells in Ireland, we have the representation of a man tearing open the jaws of a lion or other wild animal, in attitude so precisely similar, that they might pass for copies from the same original, and, in all likelihood, referred to the same event. The idea of Mr. Logan, that the complicated carved work and reticulated interlacings represented on them all, is part of the bardic custom of tying the mystic twig," seems more than plausible. *Archæologia*, XXII.

ART. VII. — *Notice by the Secretary of the Society on ten Hindu gold coins, found at the village of Hewli, in the Southern Konkan, and presented by Government: also on a collection of gold Zodiac coins of the Emperor Jehangir.*

The ten gold coins transmitted, by Government, for the acceptance of the Society, weigh each 63 grains: and have generally on one side the figure of a lion, with an inscription below in Telagu letters, *Balya Shri.*

(ಇಮಿ ಕ) which may be translated prosperity to the *Bali*; and which are oblations of food offered, at the four cardinal points, to *Indra* god of the firmament, *Yama* judge of the dead, *Varuna* the ocean, and *Soma* the moon.* Two of the coins are hammered and quite plain on one side; having on the other stamped symbols for the four preceding deities, indicated by letters, among which I recognize the Telagu letter K (ಕ) standing for *Yama*, and the cave *ch.* (ಛ) for *Soma*: The centre symbol must therefore be intended for *Vaivaswat* or the sun. On the reverse of six of the coins we find written within a circle the word *Rudra*, a name for *Siva*; and on another of them the *Trisul*, or emblem of *Siva*, with an inscription below in Deva Nagari, or *Shrimanya Devaya* (श्रीमान्य देवाय) *to the prosperous god.* This last is the newest of the series and indicates the establishment of the Saivite worship.

In the McKenzie collection of Hindu gold coins, two of them are enumerated as the *Sinha Mudra Fanam*, or the *Fanam* with the lion impression, without any further information being given regarding them. These and the ones now under consideration may, with much probability, be assigned to the successors of the *Andhra* Kings of Telingana; or the *Narapati* Sovereigns of *Warangal*, who appear to have been originally feudatories of the *Chalukya* Kings of *Kalyani*. This family is known by the name of the *Kakataya* Princes of Warangal, who at the commencement of their career, in the end of the eleventh century of our era, were *Jains*. Their original residence was *Anumakonda*, from whence, sometime after Sal. 1010, A. D. 1088, these Princes removed to Warangal, which became their capital, and represented the chief Hindu state of Southern India, till destroyed by the Mahomedans, during the reign of Ghias-ad-din Toghlak of Delhi, Hejirah. 721. AD. 132. The then reigning Prince of Warangal is called in Colonel Briggs' translation of Ferishta *Ludder Dew*; being an evident mistake for his real name *Rudra Deva*: whose possessions appear to have been bounded on the North West by those of *Rama Raja* of *Devagiri*, the modern Daolatabad.

The coins now submitted for examination, having on the reverse the name of *Rudra*, may have been struck during the reign of the Prince just mentioned; but there are good grounds for assigning them a higher anti-

* See perpetual obligations of a householder in Wilson's translation of the Vishnu Purana, Quarto p. 302.

Plate XII

Hindu Coins from the Konkan

2 1 3

Zodiac Coins of Jehanger

4

5. Persian Inscription on the reverse

از اکبر شاه چهار کیمر شاه - کت [illegible] روی را ریخت

quity, or the beginning of A. D. 1100: as at this time the second of the *Kakataya* Princes of Warangal, named *Rudra Deva*, adopted the *Saiva* in place of the *Jain* faith, and built many temples to *Siva*, or Mahadeva, in order to expiate the crime of having killed his father. Only one decisively Saivite coin appears in this collection, and is the most recent of the series: all the others indicating the prevalence of the *Jain* practice of astrology, and the worship of the *Bali* or *Baliah*, which are sidereal spirits.

Zodiac coins of Jehangir.

The Zodiac coins of the Emperor Jehangir, consisting of Silver Rupees and Gold Mohurs, are now procurable with much difficulty in India; while there are, I believe, existing collections of them which have been carried to Europe. Catron, in his history of the Moghal dynasty (page 147), states that the celebrated Empress *Nur-Jehan*, better known, as the favourite wife of the Emperor, by the title *Nur-Mahal*, or the light of the Palace, caused these coins to be struck; when, to obtain full possession of her husband's heart, she procured the banishment of all rivals in his affections, or removed them by less innocent means. John Bowman, Esquire, is in possession of a fine collection of these Gold Mohurs; all of which, excepting those bearing the zodiac signs of *Cancer* and *Capricornus*, were struck at Agra. The two last were issued from the Mint at Ahmedabad. On the obverse of each are the names of Akbar and Jehangir, inscribed in Persian letters, and dated in the 13th year of the Julus, or personal era of the Emperor Jehangir; which on some of the coins is accompanied by figures 48, intended to represent as would appear the 48th year of the personal era of the Emperor Akbar, or Hejira 1011; when Akbar proclaimed himself, on his arrival at Agra, Emperor of the Dekhan. The 13th year of Jehangir's personal reign corresponds however with Hejira 1027; when the Emperor, after an absence of five years in Gujarat, returned to his Capital of Agra, and soon after lost his father-in-law, the father of the Empress *Nur-Mahal*; who proposed to transmit his fame to posterity by perpetuating his memory in a monument of solid silver, and with the same view may have caused these Zodiac coins to be struck.

(Signed) JAMES BIRD,
Sec. B. B. R. As. Society.

Art. VIII.—*On the origin of the Hamaiyaric and Ethiopic alphabets, by* James Bird, Esquire.

In making public translations of the *Hamaiyaric inscriptions*, from *Aden* and *Saba*, embraced in Art. IV of the present number of the Society's Journal, it was my intention to reserve a consideration of the question, "*whether this alphabet be of Greek or Semitic origin*," till a more convenient opportunity might permit me to analyze the character of individual letters. My public engagements will not, however, at present admit the execution of this plan, and I am therefore obliged to submit an imperfect outline of my opinion on the subject, in deference to the advice of a friend, who suggested the propriety of publishing, along with *translations* of the inscriptions, an *alphabet* of the character. At no distant period I will resume the subject of the *Hamaiyaric* and *Ethiopic* alphabets, and endeavour to shew that the former had its origin from the ancient *Phœnician*, made apparent by the accurate researches of the learned Gesenius; and that the latter differs not materially from the former, except in having adopted the system of seven Greek vowels, expressed by particular marks and modifications of the letters in the first column, which Dr. Wall remarks, has been termed *Ghiz* ግዕዝ, or the free, in order to mark its pre-eminence; because the letters, in this column, are not restricted to particular vowel terminations, but constituted the entire system, when the Bible was translated from *Greek into Ethiopic*, and the Abyssinians, converted to Christianity, in the time of Frumentius, received the Greek Scriptures between A. D. 325 and 335.

The *Syrian*, like the *Hebrew* and *Phœnician*, consists of an alphabet of 22 letters, written from right to left; which are either separate or joined with the preceding or succeeding characters; but the *Hamaiyaric* of inscriptions, found on the coast of Southern Arabia, has on the contrary an alphabet of 25, if not 26 letters, written from left to right; for it is probable that further research will discover that the *Hamaiyaric* embraces the whole 26 letters, composing the alphabet of the *Ghiz*, or modern *Ethiopic*. The scheme and arrangement of the latter, called, from two syllables of the series belonging to its first letter, ሀ ሁ ሂ ሃ ሄ ህ ሆ *Ho He Ya T*, differs from that of the *Phœnician* and *Hebrew*, which commences with *Aleph* and *Bet*; but an inspection of the accompanying alphabetical table, plate XIII, will render evident to the most unlearned observer,

Plate XIII

Hamaiyaric and Ethiopic Alphabets, arranged by J. Bird Esq.r and compared with the Hebrew, Phœnician, Samaritan, Mindaian, and Arabic Alphabets &c.

Hebrew	Name	Power	Ancient Phœnician Letters	Hebrew on the Coins of the Maccabees	Samaritan Alphabet	Mindaian	Hamaiyaric of Inscriptions	Ethiopic of Inscriptions	Modern Ethiopic	Name	Power	Corresponding Letters of the Arabic
א	Aleph	a	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Aleph	a	[illegible]
ב	Beth	b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Beth	b	[illegible]
ג	Gomel	g	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Gomel	g	[illegible]
ד	Daleth	d	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Daleth	d	[illegible]
ה	He	h aspt	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Hawt	h aspt	[illegible]
ו	Ion	o	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Wow	o	[illegible]
ז	Zain	z	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Zain	z	[illegible]
ח	Heth	h hard	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Hawt	h hard	[illegible]
ט	Beth	t	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Tait	t	[illegible]
י	Jod	i	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Yamin	jeep	[illegible]
כ	Kaf	k	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Kaf	k	[illegible]
ל	Lamed	l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Lawn	l	[illegible]
מ	Mim	m	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Mai	m	[illegible]
נ	Nun	n	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nahas	n	[illegible]
ס	Samach	s	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Sadi	s	[illegible]
ע	Ain	o	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Hayan	o	[illegible]
פ	Phe	ph	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Af	f	[illegible]
צ	Zadi	ʒ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Zappa	ʒ	[illegible]
ק	Kaf	q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Kaapa	q	[illegible]
ר	Ros	r	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Ros	r	[illegible]
ש	Shin	sh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Shin	sh	[illegible]
ת	Thaw	t	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Thaw	t	[illegible]
							[illegible]	[illegible]	[illegible]	Zadi	ʒ	[illegible]
							[illegible]	[illegible]	[illegible]	Tait	t	[illegible]
							[illegible]	[illegible]	[illegible]	Hyr	h	[illegible]
							[illegible]	[illegible]	[illegible]	Pedi	ph	[illegible]

that the names of 22 letters in modern *Ethiopic*, corresponding in character with the *Homaiyaric* of inscriptions from Arabia, and the *Ethiopic* of inscriptions from *Axum* and *Tigré*, differ in no respect from the names and power of the 22 *Phœnician* and *Samaritan Hebrew letters*, from which they were derived. In some of the inscriptions, copied by Messrs. Hulton and Smith, from the neighbourhood of the Bedwin town of *Dees*, distant only four hours from *Ras Sherma*, on the Southern coast of Arabia, the following letters, *Bet*, *Waw*, and *Mai*, retain their original *Phœnician* character, viz. 𐤁 𐤅 𐤌, but have not been inserted in the present table.

The names of the *Hamaiyaric letters*, corresponding as they do with those of the *Hebrew* and *Phœnician*, obviously indicate its *Semitic* origin; and no doubt can exist that these constitute the character, anciently known among the Arabs as *Al Musnad*, or the propped; being in many cases not materially different from the *Hebrew* and *Syriac* characters, having only the addition of foot props. This and other forms of the Arabic alphabet, including the *Kufic*, was borrowed from the *Phœnician* and *Hebrew* letters, that were in current use among the Jews from the second century before Christ to the seventh of the Christian era. Michaelis in his Grammatica Syriaca, pp. 22, 23, correctly asserts, "Quo tempore Arabes a Syris literas sumserunt mutuas, quod factum est Muhammedis ætate, seculo Septimo ineunte aut paulo antea, tres modo vocales habuisse Syros necesse est, tot enim ab illis acceperunt Arabes, *Fatha*, *Kesre*, *Dammo*, quas et Cuphica jam scriptio habuit, totidemque vocales, literis ipsis innexas Sabiorum seu Galeleorum alphabetum habet." The *Hamaiyaric*, like the character of the *Palmyrene inscriptions*, seems altogether deficient in vowel signs, which as Dr. Wall satisfactorily shews were not in use when the Septuagint version of the Bible was made: all the letters of the Hebrew text being, at this time, employed as signs of syllables, beginning with consonants and ending with vowels.* The letters of the alphabet were all consonental, inclusive of ع ا و ي of the Arabic, or the *Ain*, *Alif*, *Waw*, and *Yod* of the Hebrew and Syriac, which were termed quiescent in the pointed texts of the Bible; but were afterwards employed as *vowel signs*, as soon, from the *Homaiyaric inscriptions*, by a

* Examination of the ancient orthography of the Jews, and of the original state of the text of the Hebrew Bible, by Charles William Wall, D. D. Professor of Hebrew in the University of Dublin, vol. II. p. 271.

comparison of these with the corresponding words in Arabic. The Syrians had at first only three vowels, corresponding to the same in Arabic; but, as the *literati* advanced in translating the Bible and other works into Greek, they endeavoured to express all the sounds of the proper Greek names, substituting at first five Greek vowels, and subsequently carrying them as far as seven;* which number were also adopted by the *Ethiopeans* on the transfer of the *Hamaiyaric character* to the shores of Axum. The quiescent letters of both the *Arabic* and *Ethiopic alphabets* possess no sound in themselves, till animated by points; and the *Waw*, on the coins of the Maccabees, 𐤅 or the Hebrew *vow* so modified is found to retain this character in some other inscriptions, such as the Bactrian Pali, from *Shah Baz Ghari*; which, as can be clearly shewn, had a kindred origin with the Pelalvi writing on the Persian monuments of *Nakhshi Rustam*, *Nakhshi Rejib*, and *Takhti Bustan*, and are closely allied to the letters of the Palmyrene inscriptions; of which the first dates not earlier than the year 135 of our era. The opinion of Dr. Wall, therefore, "that it was from reading Greek that the Jews learned the use of vowel signs, and in consequence applied three of their letters occasionally to this use, precisely in the same manner as the cognate letters were afterwards employed in unpointed Syriac, and are, at this moment, employed in unpointed Arabic,"† is so consonant to truth and the practice followed in the Hamaiyaric inscriptions from Southern Arabia, as to bring home to us conviction, that, while the Hamaiyaric is a derivative from Phœnician, it at the same time employed four additional characters to express the Greek consonental sounds of Zeta, Ζ Eta, Η Pi, Π and Psi, Ψ as apparent in the comparison made of the several alphabets. Along with this adoption of Greek vowels and additional consonental characters, the Hamaiyaric and Ethiopic alphabets use, as numbers, certain figures derived from the numerical system of Greek letters.

If the opinions regarding the origin of the *Hamaiyaric* and *Ethiopic alphabets* be correct, and of which I entertain not a doubt, it will follow as a matter of course that the *Hamaiyaric inscriptions from Aden*, and those translated in Art. IV. should be read from left to right, like ma-

* Grammatica Syriaca Joannis Davidis Michaelis, p. 24, et Bibliotheca Orientalis Assemani Tom. I p. 522.

† Wall's examination of Jewish Orthography, vol. II p. 221.

dern Ethiopic; and made use of diacritical points, such as appear to have been introduced into Syriac by the Nestorian Christians. The Ethiopic inscriptions, on the reverse of the Greek tablet at Axum, published in Mr. Salt's voyage to Abyssinia;* and written in precisely the same character as the Hamaiyaric of Southern Arabia, read from left to right, and record that John, Bishop of Ethiopia, taught from the neighbourhood of the River (Nile) the Sabeans of Hazramaa. He is the same John who was sent, as appears, into Ethiopia, during the reign of the Emperor Justin A. D. 521, in order to settle the Christian faith of that country, and was accompanied by several missionary assistants. This and other facts give probability to the opinion that the Hamaiyaric of inscriptions, in Southern Arabia, are of comparatively modern origin, and cannot, at the utmost, have an antiquity beyond 200 years before the birth of Christ; when, on the coins of the Maccabees, we find many Hebrew letters cognate with those of the Hamaiyaric inscriptions. The language of these now translated is a mixture of *Ghiz and modern Arabic*; and as the adjectives, found in the inscriptions, are formed on the principles of Ethiopic Grammar, while the preposition *Ba*, used both in Persian and Ethiopic is found in them, it must necessarily follow that these inscriptions can be but little anterior to the commencement of the Christian era, and are, in all probability, several centuries after it, when the Hamaiyaric sprung from the Phœnician, altered to express Greek vowels and proper names.

The comparatively modern origin of the Hamaiyaric alphabet may be also deduced from what we know regarding the origin of the *Coptic*; which, cannot be traced back further than the 1st Century of our era, though the language itself existed at an earlier period. When the early Christians translated the Bible into Coptic, the versions of it from the Septuagint were written from left to right; and where Coptic sounds could not be expressed by Greek letters of similar force, additional Coptic letters were used. In this manner seven additional Coptic characters, were added to the 24 letters of the Greek alphabet; exhibiting, in this respect, a remarkable similarity with the practice pursued in the Hamaiyaric characters, and in the translation of the Scriptures from Greek into Ethiopic. We not only observe this anology between the systems of the two alphabets, but can distinguish an almost identity of character between the seven ad-

* Salt's voyage to Abyssinia.

ditional letters of the Coptic alphabet and those similar found in Ethiopic. The following seven letters not in the Greek alphabet, ⳯ϤϪϬϨϮϾ or *sh, f, k, h, z, s, ti*, will, on a comparison with the alphabetical table of the Hamaiyaric here submitted, be found to be almost identical in character.

The Semitic origin of the Hamaiyaric letters, and their derivation from the Phœnician may be yet further accounted for by what Masudi in his Golden meadows, and other Arabic historians relate, that the descendants of Khatan or Yoktan, inhabiting Southern Arabia, used the *Suryani*, or Syriac language, previous to the amalgamation of the several dialects now constituting the Arabic language, which probably derived its title, posterior to the Exodus, from the Hebrew עֵרֶב *Arab*, signifying a mixed people. Philostorgius further relates that Syrians were settled in the neighbourhood of the Ethiopic ocean, "*Ad maris rubri inquit exteriorum sinum sinistro latere degunt Axumitæ, ex vocabulo Metropolis ita appellati: urbium enim caput Auxumis dicitur. Ante hos autem Auxumitas, Orientem versus, ad extimum pertingentes Oceanum, accolent Syri, ab eorum quoque regionum incolis ita dicti. Etenim Alexander Macedo eos ex Syria abductos, illic collocavit: qui quidem patria Syrorum lingua etiamnum utuntur!*" And Strabo notices that towards Arabia Felix in the Indian Ocean, there were Colonies of Sidonians, Syrians, and people of the island of Arwad.*

I must therefore dissent from an opinion expressed in a late publication, on the Historical Geography of Arabia, that the Hamaiyaric characters only consist of 20 letters, or can be the first alphabet of mankind.† Mr. Forster terminates his observations with this remarkable conclusion, "there is every moral presumption to favour the belief, that, in the *Hisn Ghoráb* inscriptions, we recover the alphabet of the *world before the flood*:" but neither Palæography nor Philology will bear him out in so unphilosophical a conclusion. I may briefly recapitulate the chief points which argue against the correctness of his interpretation of the Aden, Hisn Ghoráb, and Nakab-al-Hajar inscriptions. 1st. The Hamaiyaric inscriptions on the coast of Southern Arabia are precisely in the same character as the Ethiopic inscriptions found on the opposite coast of Axum, and on the reverse

* Bibliotheca Orientalis Assemani, Tom. IV p. 960.

† The Historical Geography of Arabia by the Revd. Chas. Forster, B. D. in 2 vols. London, vol. II. p. 405.

of the Greek Tablet there; which dates not earlier than the 4th Century of our era. 2nd. The existence in Hamaiyaric of three quiescent letters, used by the Syriac as vowels, and the change of *Ain*, into *a i*, or *u*; a practice which had not existence prior to the commencement of the Christian era. 3rd. The striking similarity between the *ancient Hamaiyaric*, and alphabetic characters of the *Modern Ethiopic*, which had not an antiquity greater than the time of Frumentius, while the probability is that it is considerably later, or about A. D. 508, when Philoxenus translated the Scriptures into Syriac, and adopted the system of the Greek vowels. 4th. The introduction into Hamaiyaric of three, if not four, additional letters to express Greek sounds, which differed from those of the Hebrew or Phœnician. 5th. The figure of a *cross* accompanies most of the inscriptions from Southern Arabia, and is very apparent below the Hisn Ghorab inscription, indicating its comparatively recent and Christian character. Such seem to me strong reasons for differing from Mr. Forster, and from his system of reading the inscriptions from right to left, instead of from left to right as in modern Ethiopic. At some future time I will return to this subject.

ART. IX.—*Historical Researches on the Origin and Principles of the Bauddha and Jaina Religions: embracing the leading Tenets of their System, as found prevailing in various countries: illustrated by descriptive accounts of the Sculptures in the Caves of Western India, with translations of the cave inscriptions from Kanari, Ajanta, Ellora, Nasik, &c. indicating the connexion of these caves with the Topes and Caves of the Panjab and Afghanistan.* By JAMES BIRD, Esq., F. R. G. S. Member of the Royal Asiatic Society, and of the Bombay Medical Service.

ANALYSIS.

On looking at the Indian provinces, where unquestionable Bauddha monuments remain, we are surprised at the great extent of country, over which this religion was spread; and view with wonder the relics which mark its former existence: scattered as they are from the caves of Balkh

Bamian, and the Indus westward, to the confines of Nepal and the Ganges eastward; from Kashmir and the sources of the Jelum, on the north, to the southern promontary of Cape Comorin, and the island of Ceylon. The state and principles of this religion, as now found existing in Ceylon, have been well illustrated and examined by the late Honorable Mr. Turnour; its condition and leading tenets in China, were learnedly expounded by the late Mr. Remusat; Mr. Hodgson in his various papers on Nepal Buddhism, published in Prinsep's Journal, has made us familiar with Bauddha religious literature in Nepal; and Mr. Klaproth has performed for us a like service regarding that of Japan. But relative to the inscriptions written in *Prakrit*, and found on the monuments and caves of this ancient religion throughout India, little or no information has been conveyed to us beyond what is contained in the brilliant discoveries of the late Mr. James Prinsep, on the subject of Asoka's monuments, and the observations of William Erskine, Esquire, on the remains of the Buddhists in India, published in the 3rd Volume of the Bombay Literary Society's Transactions. Our selections from the present work, therefore, though desultory, will be of interest to those general readers, who take some pains to inform themselves regarding the former state of India, both under its Hindu and Mahommedan rulers.

It has been ascertained, beyond doubt, that the earliest grammar of the Pali language, in which the greater body of Bauddha literature was written, was composed in the Dekhan; and it is a subject worthy of learned investigation to determine the relative antiquity of the Sanskrit and Pali grammatical systems; with which question the comparative antiquity of the Brahmanical and Bauddha religions is closely connected. In the publication from which we are now about to quote, the author, for the better investigation of his subject, has done so under the following heads:—

First, a description of the principal excavations of Western India.

Second, a sketch of the system of Buddhism, as it prevails in Ceylon, Burmah and Siam, Tibet, Tartary and China.

Third, translations of the Western Cave inscriptions, and the connexion of these with Buddhism as it now prevails in other countries.

Fourth, observations on the symbolical marks preceding the inscriptions; their similitude to those on the coins found west of the Indus and in the Panjab, and on the connexion between the *Topes*, or Buddhist mausolea of these countries, and the Western Caves.

Fifth. The history of Buddhism traced and illustrated.

Under the first head he describes the excavations of Karli, Kanari, Nasik, Junir, Aurungabad, Mahar, Ajanta, Ellora, Badami, and Mahamalaipur. The caves generally consist of two classes. "In the first of them the objects of worship, represented by the sculptures, are confined to personages and manifestations of the deity belonging to the simpler and more philosophical form of Buddhism, which seems to have prevailed at its origin; in the second, the variety and modifications of objects worshipped have reference to the more complicated and extended Brahmanical Pantheon, the Sakta form of Hinduism, the worship of Siva Bhairava, in conjunction with his consort *Uma*, or Parvati. The former, characterised by simplicity of design and execution, consist of one or more arched temples, which contain the *Dehgop*, or stone spire of an hemispherical form: and these are surrounded by flat roofed excavations, in which are found one or more sitting images of Buddha, a number of small cells, and sometimes broad benches running round the apartments, shewing that such were dedicated to the use of a monastic fraternity, and the education of disciples, who had abandoned the world in order to submit to religious discipline. These temples are further distinguished by having long inscriptions in a language, which is neither pure *Pali nor Sanskrit*, though approaching sufficiently near either to be intelligible through their medium: and the character in which it is written differs but little from that of the inscriptions on *Asoka's pillars*; which was in use we know during the third century B. C. To this class belong, as would appear, the caves of Karli, Kanari, Aurungabad, Nasik, Junir, Mahar on the Baukut river, and the southern ones at Ellora. The large excavation at Kanari, in the vicinity of Bombay, is further distinguished by having in front of it, on a ledge of the mountain, several small mounds, or burying places of *Rahats*, or *Saints*, who were tenants of the caves. One of these, a dilapidated pyramidal building of earth and stone, was opened by me in 1839; when two copper urns containing human ashes were found. In one of the urns there was a small gold box, containing a fragment of white cotton rag, accompanied by a pearl, a ruby, and some small pieces of gold: in the other there was a silver box along with the ashes. The most interesting relics however discovered on this occasion were two copper plates, one of which bore an inscription in the *Lath* character of the caves, and the other in a more florid writing, similar to that of the *Chattisgarh* and

Seoni inscriptions of the 8th and 9th centuries; which has been aptly enough denominated the *Andhra* character, and from which the alphabets of the southern Peninsula were derived. The last part of this inscription contains the Bauddha creed as inscribed on the base of the image from Tirhut, and on the stone extracted from the Thupa at Sarnath, near Benares; identifying these as Bauddha Mausolea, with which the Thupas of the Punjab and Kabul are in other respects analogous.

"The second class of excavations, to which belong the nine middle caves of Ellora, those at Elephanta and Badami, are characterized by a more florid and laboured style of sculpture, representing groups of many armed figures of Vishnu and Siva in their various avatars; miniature scenes of battles from the sacred epics, the *Ramayana*, and *Mahabarat*; triad figures of *Siva* in union with the female principle, or *Uma;* and stone lingas in the recess. A greater grandeur of design and spirit of execution is observable in the figures of this class than in the simpler sculptures of the earlier Bauddha College, such as Kanari; and exaggeration is resorted to in order to give energy to the suggestions of imagination on subjects of religion to which they refer. Their architectural character too, from which the style of the ancient Hindu temples of the tenth and eleventh centuries, A. D. has been derived, would not indicate that such is the early efforts of a rude people, emerging from barbarism, but rather that it has been matured by experience: and that though the types of Buddhism and Saivism were not radically different, when the two religions emanated from a common system, yet the things here typified embrace so many Brahmanical combinations, that the very presence of Saiva symbols and images, in structures exclusively Bauddha, imply, that when such were executed, the tenets of both religions were matter of high debate in the civil society of India. The comparatively few inscriptions found in this class of caves, and the nearer approach of the letters to the present alphabets of the southern Peninsula, point out the more modern origin of the structures: while the smaller number of cells for the priests, compared to the extent of these caves, shew that they were less places of tranquillity and retirement, for monastic establishments, than of public resort and pilgrimage, or *Tirthas*, for the great mass of the people.

"The caves of Ajanta are of a character intermediate between these

two classes of excavations, possessing much of the extent and grandeur of the latter, but without the same marked traces of Hinduism, or of Tantrika principles, that are found engrafted on Buddhism at Ellora. Many of the Bauddha figures would here, however, appear to be distinguished by the symbolical representation of particular animals and things, which indicate some deviation from the original worship of *Buddha Sakya*, and may be the origin of the Bauddha adaptation of Sakya's religion to Vaishnava principles, as explained in the Sri Bhagavata; by which the different descents and forms of the deity, as Vishnu, are made the origin of the *Jain* saints. The images in the different caves are characterized by being represented naked, or covered by a robe, and have distinguishing marks engraved on the pedestals, or *Sinhasans*; such as the ape, the lotus, the wild cow, the antelope, the goat, and the *kumbha* or jar; which are the appropriate symbols of the Jain saints, Abhinandanu, Padmaprabha, Vasupujaya, Santi, Kunthi, and Malli. The Bauddha religion of Nepal acknowledges indeed many forms of Buddha, mortal and celestial; but the presence of the *Jain* symbols, on the pedestals of the images at Ajanta, their clothed and naked representations, similar to the Swetambara and Digambara images of the Tirthankaras, and a sculpture of Garura, supporting the roof of one of the caves, have suggested to me the opinion, that while some of the neighbouring excavations at Ellora were dedicated to Tantrika principles and Saiva mythology, engrafted on Buddhism, those of the more primitive Bauddha caves at Ajanta, shew corruption from admixture with the more congenial principles of the Vaishnava faith. I give this opinion more with a view of future research, by those who may find leisure for investigating the native literature and annals of the Jains, than under the conviction that it is one admitting of proof; but as the Vaishnava and Saiva faiths divided the popular mind of India, from the fifth to the tenth centuries of our era, the opinion is worthy of consideration. The larger inscriptions too at Ajanta, though they may be long posterior to the excavations, are closely allied by the character of their alphabet, to the *Chattisgarh* inscriptions of the eighth and ninth centuries, which have been already noticed."

Regarding the architecture of the caves, the author remarks, "Professor Heeren is of opinion that the style of modern Hindu architecture takes its origin from the pyramid; but on looking at the general character of this architecture, as developed in the temples erected throughout the southern

Peninsula, posterior to the twelfth century of our era. I am rather disposed to conclude, that the model from which they derive their origin is the composite *Deyhup* as seen in plate VI. The architecture of the caves is altogether of a monumental kind, possessing much of the colossal grandeur and vastness of the Egyptian style; with which, in the general outline, it possesses a similarity of design: the shafts of the pillars being cinctured, at intervals, by bands of three or more rings, or decorated, in other respects, by the spaces between the bands being reeded and sculptured with figures. The columns too have rarely any distinct base, and exhibit examples of double capitals, peculiar to Egyptian architecture; the square member of the cave pillars being sculptured with a figure of Buddha, as seen in plate XV, instead of the heads of *Isis* as observable on the sides of the Egytian capitals."

The individual excavations are then described; and in the introduction to the work, and head,

Excavations of Ajanta,—we find the following observations. "These monuments which I have classed as intermediate between the simple Bauddha caves, and those which have been termed Brahmanical, by Mr. Erskine, are nearly as magnificent and extensive as those of Ellora; which must, however, be reckoned of later origin, and mark the change of faith among the people of Western India from simple Boddhism to Saivism, and the orthodox system of Hinduism which is now prevalent.

"These excavated temples, known by the name of the caves of Ajanta, or the pass, are situated about three miles southwestward of the village of *Fardapur*, which lies at the bottom of the *Ghat* leading from Aurungabad into the province of Khandesh. The bed of a mountain torrent, winding through the rocky bottom of a ravine, leads to a deep and narrow dell; where the perpendicular face of the rock may be between two and three hundred feet in height, at the place where the caves commence. The repeated doublings of the ravine seem to cut of this sequestered spot from all communication with the world; and the dell at its further extremity narrows into a chasm, which is shut out, on either side, by precipices of rock at least a hundred and fifty feet high, where a cascade of seventy or eighty feet, after falling into a deep and capacious bason at the bottom, overflows to form the rocky torrent, just described, which is dry during the months of April and May. The sides of the ravine, where not precipitous, are clothed with wood; and the features of the

scenery, if not magnificent, are highly romantic, and have an air of wild solitude peculiarly striking.

"The caves are situated in the ravine on the right side, at about one third of its height; and following the winding course of it, from east westward about a quarter of a mile, describe more than the quarter of a circle. Those which were accessible and visited by me, during the hot weather of 1828, amounted to twenty two; but some new ones have been since discovered. Four of these are arched ones containing the *dehgop*, and the others are flat roofed." The former are genuine *Chaityas*, or temples dedicated to *Adi Buddha*, as in Nepal: the others are generally *Viharas*, or monastic institutions for the ascetics, in many of which are found images of *Buddha* seated on thrones, here sculptured with devices of different animals, now the distinguishing marks of the *Jain* saints, and perhaps appropriated to the different manifestations of *Buddha*. Since my visit a subscription was raised to remove obstructions and make pathways to the caves, and two new caves were thus discovered.

"The following drawings, which were made and lithographed by a native artist, convey a tolerably accurate idea of the style of painting and the subjects of the scenes; which represent rural processions, love and marriage, the storming of fortifications, and groups of women in various attitudes, particularly in the one of performing *Tapasya*, or religious austerity, on the *Asan Siddha* or holy bed of the ascetic. In others of the scenes, teachers are represented instructing their *Chelas* or scholars, in the art of mental abstraction, or *Dhyan*, by meditating on the blue lotus; six *Dhyani Buddhas*, of which *Vajra Satwa* is the sixth, are seen springing divinely from the lotus. Another of the paintings represents the contest of the *Asuras* to get back the ravished daughter of their king, who had been carried to the *Tavatinsa* heaven, or *Bhavana* of *Indra*, an account of which is communicated in Mr Upham's system of Buddhism. In the sculptures most of the figures have curled or wig-like hair, and their heads are generally covered by tiaras. The same are similarly represented in the paintings, which are executed "*alla fresco*," on a composition of white calcareous earth and cowdung, smoothed finely over with a thin coating of choona, or tufaceous lime, found in India. The women are always drawn without any covering to the breast, and their drapery has the form of a petticoat below, part of which is thrown

in some instances over the left shoulder, leaving the right breast bare. The dress of the men is nearly similar to that of the women, and the figures of both are painted black, blue, and other colours, among which however a yellow, or copper brown, is the prevailing one. Several animals as horses, elephants, and bullocks highly ornamented, are depicted; and some visitors remarked that three horses yoked abreast in a carriage were observable. A grave figure with curled hair, thick lips, and lobe ears, sometimes appears amongst the paintings, and is evidently of a character entirely different from the figures around him; and this with the striped petticoats of the women suggests an opinion that the people who executed the paintings were the subjects of the most illustrious prince of the Indies, named the *Balhara*, who was king of *Mahurmi-al-adan*, or of those who have their ears bored, and that the inhabitants were subjects of the kingdom of Calaber, who were dressed in those sorts of striped garments which the Arabs call *Fauta*.

The Buddhas here represented, seem to be of all nations and colours, and have each a nimbus round their head similar to that round the heads of Christian saints, and which was not introduced we know previous to the establishment of our era. The people who frequented these religious shrines must have had an extensive acquaintance with various nations; and the nicely combed and curled hair of the women, whose locks, brought down in ringlets over the ears, descending on the neck, with the head dress or fillet which surrounds the brow like a muslin band, and the high tiara of the chiefs or princes, loaded with pearls, indicate artificial taste and habits at the time when these paintings were executed. Some visitors have remarked that Grecian military costumes were to be seen, but I did not observe any such at my visit, and the only thing of this kind which has come to my notice is the head covering of one of the figures drawn for me by Professor Orlebar, and which certainly has a very close resemblance to the Grecian helmet. Mr. Orlebar, in an account of these caves kindly communicated to me, remarks that these paintings are not historical, but seem intended to convey moral instruction, and that in the Indo Bauddhist system, education was a primary object. In one of the Dehgop caves, a female worshipper of Buddha is painted in the act of teaching, surrounded by a group of smaller figures who are attentively listening, and among whom one seems to be a Brahman. In several of the scenes, representing masters teaching their scholars, the modern *Sannyasi* of the Hindus is observable.

There is one large painting already referred to, representing a siege. Mr. Orlebar remarks that, on the fore ground from the left, the besieging army is seen in advance, and consists of elephants, infantry, and cavalry under the wall of the town. Within the walls the king is seated on his throne and surrounded by attendants: while some of the besieged are throwing themselves down from the wall on the enemy; some are descending, and some have already alighted; and of these one spirited group represents a struggle between two of the besiegers, and a warrior whose dishevelled flowing hair shews that he has just alighted, and others are on their knees begging for quarter. The wall in its construction is as singular as the defence of it. It consists of a series of peaked battlements, in which there are no loop holes. The besieged are here represented with fair European countenances, while some of the besiegers are dark. The infantry of the latter are armed with a shield and sword, of a curious form, and with a short spear. Those mounted on elephants have spears, or bows and arrows; but their dress is generally scanty and they have apparently no defensive armour. The whole appears, as I have already said, to be an attempt of the *Asuras* to get back the ravished daughter of their king from the heaven of Indra.

Besides these, there are domestic scenes, seraglio scenes, processions, and portraits of princes, larger than the rest. There is an Abyssinian black prince seated on a bed along with a fair woman, to whom he appears to be married; here a fair man is dressed in a robe and cap like that of a monk or abbot, and there again, in other parts of the painting, are females seated in flower gardens surrounded by attendants, or are seen sitting within small buildings, with light pillars, resembling Chinese summer houses. Round the neck and over the right arm of many figures, male and female, the mystic triple necklace is disposed, while these hold in their hands the lotus, and appear as if engaged in the contemplation of some deep point of philosophy. Other figures, represented of a dark complexion and with curled hair, are standing on the lotus, and hold in their hands the discus, or *Chakra*, which is one of the sacred emblems in the *Phra Patha*, or divine foot of Buddha, and is typical of eternity and universal domination. We learn, from Captain Lowe, that, according to the Siamese ritual, the worshipper with uplifted folded hands is directed to enumerate it among the sacred emblems. The head dress of many of the figures, which is pyramidal, resembles the Persian tiara; and though less

peaked than the *Mukut*, or crest of Buddha, depicted in the Phralat, it may be here, as in the other, emblematical of the solar ray, being analogous, in this respect, to the winged crown on the obverse of the Sassanian coins of Persia, the reverse of which is remarkable for a fire altar, and two wheels, or Chakras, over the heads of the officiating priests. The spirit of polytheism is disposed to imitation, so that the legends and practices of one sect are often appropriated by another. We need not therefore be surprised that the Bauddhists of Siam worship the sun, under the name of *Pra Athit*, as mentioned by Captain Lowe; or that we should find pure Buddhism, on the west of India, early corrupted by an admixture of the Sabean and Magian faith; or blended, afterwards, as in Nepal, with the worship of Siva and Tantra rites. Shamanism, or the gross form of Buddhism, which exists among the Tartar tribes, is combined with astrological superstition of magic and sorcery; and, if it differs in practice, is similar in its doctrine with the *Kala Chakra* system of Tibet, which has been already explained in a note on authority of De Koros. Whatever apparent differences may exist between the style of sculpture, and symbols which mark the alliance of one class of cave monuments with a period when primitive Bauddhist notions prevailed, and of those which refer another class of them to a time, when these notions, were corrupted by foreign admixture; such may be ascribed with more truth to the spirit of imitation and the accommodating temper of superstition, than to the possibility of having derived their origin from rival sectaries, so opposite to each other as were the Bauddhists and Brahmans. The caves of the western coast are doubtless Bauddha, or Jain; and of the latter only a few remains are to be met with at Ellora, which may be posterior to the corruption of pure Buddhism by Tantrika principles.

Among the paintings at Ajanta there are several portraits; one of which is a Raja on his knees performing his devotions, and there are other four placid faces of men and women. The hair of the women is tied by a bandeau, after the fashion of the women on the Garrow hills near Bhagalpur; who are described by Mr. Elliot as having their hair bound with a tape, three inches long, so as to keep it back from their foreheads, though generally it is tied with a string on the crown of the head. There is also a portrait of a lion monstrosity not unlike an Egyptian sphynx. It is deformed by a cap being given to the curling hair of its head, and a girdle to its body, and has doubtless some emblematic

meaning, as it appears at the feet of a Buddha standing on the leaves of the lotus, below which the many headed Nag is painted.

Besides these there is a hunting scene, wherein dogs are represented with collars and short tails, and horses with saddles not unlike what we see in Europe. The borders and patterns on the roofs of the caves are extremely well painted, and many of them are even tasteful and elegant. Some of the colors are fresh as when they were first laid on, especially the light blue, but the red has generally faded into a dirty brown."

Caves of Ellora. These magnificent monuments, which belong to the second class of excavations, are next described, and under this head we find some preliminary observations regarding points of doctrine, wherein the *Bauddha and Jaina* sectaries agree or differ, from which the religious sculptures belonging to these particular sects may be appropriated to each of them. We quote the following:—"The two heterodox sectaries of *Buddha* and *Jina* agree in placing within the limits of south Bahar, and its immediate vicinity, the locality of the death and apotheosis of the last *Buddha*, and of the last *Jina*; disavow the *vedas*, and deities of the Hindu Pantheon; lived originally in a state of celibacy in religious societies, or monasteries, as we learn from the fables of the *Pancha Tantra*; select their priests from among the children of all branches of the community; have preserved for their sacred language the *Pali* or *Prakrit*, a dialect closely resembling the Magadhi or vernacular tongue of South Bahar; have nearly the same traditional chronology for the origin of the two sects; do not eat after sunset, and sweep the spot on which they sit down from their regard for the preservation of animal life. Both sects agree too in holding the doctrine of eternal atoms, which are the elements, earth, water, fire, and air; and which become the world's cause when in a state of aggregation, and of its dissolution when universally separated. This opinion they maintain in common with the *Vaiseshika* school of Hindú philosophy, of which *Kanada* is the author; and which is controverted by the more orthodox opinions of the *Vedantis* or the followers of the *Mimansa* philosophy. Though this information, regarding their early opinions, is obtained from the controversial disquisitions of their Brahmanical adversaries, it is essentially correct; and such opinions are perhaps more original than those now prevailing among the Bauddhas of Nepal; who, according to Mr. Hodgson, admit the *Pancha Bhuta* or five elements, of which the five *Dhyani* or celestial Buddhas

are personifications. The Nepalese also admit *Manasa* and *Dharma*, or the sentient principle and condition of merit, as the sixth *Dhyani Buddha*, but as these last do not appear to have been admitted by the earlier Bauddha sectaries in India, nor were such opinions mixed up with the *Saiva* and *Sakta ritual* in Nepal, until a later period, we should be cautious in drawing the inference that such were parts of original practical Buddhism; and the conclusion seems more rational that such *Tantra* rites and symbols were grafted on Bauddha speculation, as was the case we know with the *Gyut*, the seventh and last portion of the *Kah-Gyur* or great scriptural collection of Tibet. The first volume of this portion was introduced from the north it is said, into India, during the tenth century, and into Tibet during the eleventh." *

Succeeding these observations we find an analysis of the character of various sculptures, met within three separate classes of caves at Ellora, called the northern, middle, and southern. The first range consisting of the *Adi-natha*, *Jaggannatha*, *Parishrama*, and *Indra Sabhas*, with some minor excavations now nearly filled up with earth, have been called *Bauddha* or *Jaina* by Mr. Erskine. To these succeed the *Dumar-lena Jan-wassa*, *Kumarwara*, *Ghana*, *Nilkantha*, *Rameswara*, *Kailas*, *Das Avatar*, and *Rikh Ravan*, which have been thought Brahmanical works, and belonging to this religion. The last or southern range, consisting of the *Tin-loka* or *Tin-tala*, the *Do-tala* or *Dukhyaghar*, *Viswakarma*, and the group of caves, called *Dehreh-wara*, are purely Bauddha ones, and similar to those of *Kanari and Karli*."

Of the individual excavations *Kailasa* is thus decribed:—"It is the most extensive and wonderful structure at Ellora, consisting of a Pagoda in form of a cone, about one hundred feet high, standing in a vast area of nearly four hundred feet in depth, and connected by two bridges and elaborate sculptures on an elegant portico; the upper story of which, rising above the gateway, contains the *Nandi* (Siva's bull,) and appears to have been intended as a room for the accommodation of the band of musicians that attended at great festivals. On passing the gateway below, the visitor enters the area, and proceeding under a small bridge comes to a solid square mass of stone; the sides of which are sculptured with various figures, and support a room above, connected with the balcony of the

* See Analysis of the Kah-Gyur, by H. H. Wilson, Journal A. S. vol. I. p. 386.

gateway. The western face of this basement has a sculptured representation of what the Brahmans call *Lakshmi* seated on the lotus, and watered by the trunks of two elephants, similar to a sculpture of the same goddess from Mahamalaipur, given by Dr. Babington in plate VIII of his report on these interesting structures. Brahmanical identification of this sculpture, as the *Sakti* among *Saiva* figures, would show how nearly the original creed of Bauddhas and Brahmans approached each other; and though most of the sculptures of Kailasa belong, as will be seen, to the favored religious sectarism of Siva, the statue of the goddess is here represented agreeably to Bauddha ideas, which recognize the female divinity, *Adi-Prajna*, or *Adi- Dharma*, as symbolized by the *lotus*, or *yoni*; and manifested in Nepal as (jalsa-rupa) or the form of water. * On either side of this figure the passage opens right and left into the area, where are standing stone statues of two elephants, one of which is headless. Having passed these we are conducted to a second passage under another small bridge, that connects the upper room of the stone basement before mentioned with the body and upper story of the great temple. Two gigantic statues, similar to the usual representations of Buddha, are to be seen under the bridge at the second passage, and are usually named *Raja Bhoja* and *Ghatothacha*; the latter of whom is mentioned, by the *Mahabharat*, as the ustural brother of the *Pandus*. Two flights of steps lead from the first passage to the upper room which contains the *Nandi*, and is furnished with two doors and two windows. Opposite the latter there are two stone obelisks rising from the area below, and from this room, which is on a level with three small apartments over the gateway, the visitor may cross over the second bridge, and enter, (by a handsome open portico raised on lion pillars,) the grand apartment of the temple, which is supported by two rows of pillars. Two projecting portions, or balconies from the latter, appear to have been once connected, by a bridge, with smaller temples in the upper part of the scarped rock that encloses the area below. The hall of the great temple is about sixty six feet by fifty five in measurement, and the height of the ceiling varies from sixteen to seventeen

* Mr Hodgson's Notes on his sketch of Buddhism. Trans. R. A. S. vol. II page 249-253. In plates XXII and XXX of the Ajanta drawings, women are represented pouring water over the devotees, to remind them, as appears, of this essential principle of their faith.

feet. At the eastern end a doorway leads to a recess containing the *linga*; and the outer wall of the temple is sculptured with a profusion of imagery descriptive of a battle, which refers, as would appear, to the war of the *Kuravas* and *Pandus*, the theme of the *Mahabharat*. Interiorly a doorway, on each side of the recess containing the *linga*, leads to an open platform, where five smaller chapels rise in the form of a pyramid, and are elaborately sculptured with figures of the Hindu mythology, but contain no *lingas*.

Words cannot well convey an idea of this magnificent structure; on the right and left of which are several smaller excavations, in the upper part of the rock enclosing the area; and in rear of the temple, level with its base, three colonnades consisting of a single row of pillars, and corresponding pilasters, are seen between it and the northern, eastern, and southern scarps of the rock. Here between the pilasters, in the several compartments, are sculptured so many figures of the different divinities, as if they were meant to represent the whole of the Hindu Pantheon. Those in the *northern* colonnade, distributed in twelve compartments, are dedicated to the Saiva faith, and intended to represent its superiority to that of Vishnu. It is scarcely necessary here to enumerate the character of the several figures, as others have already done so, though not quite correctly; and I may satisfy myself and the reader by only alluding to some of the principal. The first on this side is the *linga*, surmounted by nine heads, which are those of the demon *Ravana* supporting the symbol, and who is said to have been so devoted a follower of *Siva* as to yield up nine of his heads to the service of this deity, and was about to sacrifice the tenth, that he might obtain immortality and universal dominion. The remaining figures are chiefly various representations of *Siva* and *Parvati*; number *seventh* is a Bhakta, or follower of this deity; and the *twelfth* one represents *Siva* issuing from the primitive linga, (pillar of radiance,) when he revealed himself to his consort *Parvati* or *Chandi*, to slay the demons *Chanda* and *Manda*, who, through a boon granted by the divine mothers, had become so powerful as to fill with alarm the three worlds; and who, though once subdued by *Devi*, were now exalted beyond her might. In the *eastern colonnade* there are nineteen compartments, containing figures that are also chiefly representations of *Siva's avatars*. In the *second* he has assumed the form of *Virabhadra* to destroy as appears *Daksha's* sacri-

fice; though the Brahman attendants call this the destruction of *Tripura Asur*,* one of the three demons destroyed by Maheswara. In the succeeding one the same deity, as an archer, is standing on a chariot drawn by horses; and with his upper left hand holds the extended bow, while the lower and third hand, on the opposite side, supports the trident. An elegant sketch of both figures has been given by Captain Grindlay, who calls the latter *Jayadharatha*, meaning nothing more than the bearer of victory; but which is here a representation of *Siva* going to battle against *Jalandhara*, as related in the Padma Purana; and of which the legend will be found in Colonel Kennedy's work on Hindu mythology.† The *sixth* compartment contains a figure of *Vishnu* in the form of *Narasinha*, or a man lion, destroying the demon *Hiranyakasipa*. From the *twelfth* to the *nineteenth* compartment, *Siva* appears in his character of eight *Bhairavas*. The southern colonnade contains a similar number of compartments as that on the north side. In the first of these, a figure half male and half female, is represented with one breast, being the type of the two productive principles of nature, and only another form of *Siva*, called *Ardha Nariswara*. ‡ The third compart-

* In all the Hindu legends regarding the destruction of demons, and varied considerably in different works, there would appear to be a veiled meaning or allegory, relative to the efficacy of penance and abstraction, or piety and virtue, raising their votaries to superhuman power, hostile to the religion of the *Vedas*, and the more recent introduction of the *Saiva* and *Vaishnava* faith. The three demons here called *Tripura*, having received a boon from Brahma, obtained the construction of three cities, and had become so powerful as to occasion distress to the gods. *Siva* was applied to by *the immortals for the destruction of the demons*; but while their chief adhered to virtue it was not allowable that this deity should slay them. *The gods failing* in their suit to *Siva*, next applied to *Vishnu*; who, deluding the demons by heretical opinions propagated by a shaved head (or Bauddha,) dressed in dirty clothes and holding in his hand a pot and besom, brought down destruction on the inhabitants of the city of *Tripura*, who had been initiated in the new doctrines. As the demons through the delusion of *Vishnu* had thus abandoned piety, *Siva* no longer hesitated to carry into effect the wishes of the gods; and accordingly destroyed the *Tripura Asuras*. Col. Kennedy in his Mythology has given the whole of this legend from the Siva Purana, and mentions also the version of it as related in the Bhagavata.

† Hindu Mythology, page 185.

‡ The following passage, from the Linga Purana, translated by Col. Kennedy, in his Hindu Mythology, will familiarize the reader with the variety of epithets given to the forms of *Siva*, and his consort Gauri, or Parvati:—

ment contains a figure with four heads grasping a pillar, and intended for *Brahma* paying his devotion to the *Agni Linga*. In the fourth one, *Vishnu*, in the *Narasinha avatar*, is tearing out the bowels of *Hiranya Kasipa*; and in the succeeding one he is sculptured sleeping on *Sesha*, or the *Dharanidhara* of the Jains, the serpent who supports the universe, and the well known representation of *Vishnu* as *Narayana*, who is thus addressed in the first hymn of the *Atharvana Veda*:—"Glorious Narayana, celestial light—Narayana, the universal spirit—Narayana, the supreme Brahma, to thee be veneration.—Narayana,—God of

"Siva is the Supreme Being, and Gauri is his energy; Siva is the male, and Gauri the female principle of existence; Siva is the meaning, and Gauri the voice; Siva is the day, and Gauri the night; Siva is the sacrificer, and Gauri the sacrifice; Siva is the heaven, and Gauri the earth; Siva is the sea, and Gauri the tide; Siva is the tree, and Gauri the fruit; Siva is Brahma, and Gauri Savitri (the wife of Brahma); Siva is Vishnu, and Gauri Lakshmi; Siva every male, and Gauri every female being; actuality is Siva, potentially Gauri; a multitudinous sparks issue from fire, so multitudinous forms of a two fold nature proceed from Siva and Gauri, of which the outward form is Gauri, but the spirit Siva; the senses are Gauri and the power of perception Siva; intellection is Gauri, and the intellect is Siva; the pedestal is Gauri, and Siva is the lingam, the object of unceasing worship by men and gods; all things of a feminine nature are Gauri, and all of a masculine, Siva; the three worlds are but the form of Gauri, whose soul is Siva. Thus are Siva and Gauri the causes of all things, the preservers of this universe, and those to whom the adoration of men ought at at all times to be devoutly addressed."

The prototype of the same goddess, in Egypt, appears to be *Isis* or Muth, the mother goddess; who like *Ambica*, (motherly,) or *Parvati*, was named the mundane habitation of Horus, or the recipient of productive power, and like the Hindu goddess, is represented more in her *physical* than *astral* character in which latter she becomes the *Nanaia* of the *Ard-okra* or *Mithraic* series of coins found in the Punjab, and was among the Persians and Greeks, the *Queen of heaven*, sometimes the moon and sometimes the planet Venus. The goddess Uma (mother) of India appears to have had appellations similar to those given to the Egyptian goddess; and is called on the *Rathas*, (or evolutions of form), at, Mahamalaipur, *Bhuvan Bhajana* भुवन भाजन: or the mundane vessel. She is there depicted with only one breast being the masculo-feminine principle of production. (See Dr. Babington's figures from the east side of the Ratha, No. 3. Trans: R. A. S. Vol II plate XVI). But I must not anticipate conclusions from facts connected with the very interesting coins, which have been discovered of late years in the north west of India; to the illustration of which I propose to devote another volume, calculated I hope to shed light on the History and Mythology of India.

gods, preserver of the universe.—Narayana contemplative supreme, to thee be veneration.—Narayana the supreme veda, the great wisdom.—Narayana, thou art all things and manifestly present, to thee be veneration.—Narayana, from whom Brahma originated, from whom Siva sprang.—Narayana, from whom Indra was born, to thee be veneration.—Narayana, the sun and moon—Narayana, light and sacrifice—Narayana, visible in fire, to thee be veneration.—Narayana the object of worship, and the pious preceptor—Narayana, eternal emancipation, to thee be veneration.—Narayana, the chief end and accomplishment and happiness of all—Narayana, the sun and Vishnu, to thee be veneration." The seven heads of the *Naga*, or serpent, form a canopy over the head of the recumbent figure, as seen in the sitting images of *Parswanatha*; and from its navel springs a lotus, on which Brahma sits. The whole must be intelligible to the reader from the substance of the hymn just quoted, shewing how intimately the primitive notions of Bauddhas and Brahmans were connected with the worship of the sun and sacrifice; till such gave way before abstract meditation and seclusion, with a tender regard for animal life. The last however, as the means of obtaining emancipation and final felicity, yielded to the preference given to the faith in particular divinities, of which there are strong indications in the sculptures we are now contemplating. The remaining figures have chiefly reference to the incarnations of *Vishnu*, as stated in the *Bhagavata* and *Garura Puranas*, regarding which I before hazarded a conjecture that the adaptation of primitive *Buddhism* to *Vaishnava* principles had given origin to the present form of the Jaina faith.*

The sixth compartment contains a figure of *Krishna* attended by cows, in his character of the cowherd of *Vindravan*; and which from its resemblance to that of the *Apollo Nomios* of the Greeks, bears strong indication of a foreign origin. In the seventh, *Vishnu* is hurling from his throne the giant *Bali*, and traversing earth at a footstep; according to the legend that when the giant gave him, in his dwarf avatar, as much ground as he could cover in three steps, he placed his feet on the three worlds. *Vishnu*, in the *Varaha avatar*, or incarnation of a hog raising up *Prithivi*, or the earth, that had been submerged by the waters, is sculptured in the ninth compartment; and similar sculptures

* See page 75.

to those just mentioned, may be seen among Dr. Babington's drawings from Mahamalaipur. The tenth compartment represents *Krishna* slaying the serpent *Kaliya*, that had poisoned the pure and sacred river Yamuna, and caused the death of many of the cowherds of *Vindravan*. The coincidence between this legend and that of the snake at Delphi, killed by the Pythian Apollo, must be more than casual; and would lead one to conjecture that the tribe of the *Yadavas*, from which *Krishna* sprung, was a northern one, having access to the mythological legends of Greece.*

Chapter second is devoted to Bauddha opinions, and religious tenets in various countries; and regarding the general principles of the Bauddha religion, and the designation of the Bauddha sectaries, we quote the following. "Prior to the publication of Mr. Hodgson's essays, on Nepal Buddhism † much obscurity prevailed in the different accounts of this religious system; rendered yet more unintelligible by European authors having blended the physical and moral parts of it, so as to leave little distinction between, what relates to the nature of a first cause, giving origin to the world; and what to the vital and human soul, produced for the expiation of sin, or to raise man above the power of the passions, and the influence of corporeal impressions; till, in a spirit of philosophy, and true knowledge, (the γνῶσις των ὀντων of Pythagoras,) he had reached that perfection which assimilates him with Divinity. To clearly comprehend the subtle speculations, and over refined metaphysics of this religion, it is necessary to remember that its anthropology, which had its origin with *Gautama*, or *Sakya Sinha*, presents a series of the same human degradation and regeneration, as is observable in the periodical revolutions of the physical world. Each of the Bauddha schools teaches, that, at the expiration of long periods of time, this world is destroyed and reproduced; and that the living creatures of former worlds, who had not yet fully expiated their sins by abstraction of the mind, and mortification of the body, dying in the *Abhassara brahma*

* It is still more remarkable that Krishna's appellations of Govinda and Kesava, गोविन्द केशव, in Sanskrit, are direct translations of Apollo's titles, in Greek, νόμιος Nomios (the herding), and εὐχαίτης Eukhaites (the well haired).

† Mr. Hodgson's various papers, A. R. Vol. xvi, p. 421, T. R. A. S. Vol. ii, p. 222, and Prinsep's Journal, Vol. iii and v.

loka, one of the celestial mansions, the scene of mortal transmigration, return to each new world; deprived of the natural effulgence, which prevented them from being affected by corporeal perceptions, or by the influence of passion and a spirit of discord.* The Suttans (aphorisms) of Ceylon, and the scriptures of Nepal, relative to the origin of mankind, seem uniform in their accounts; describing generative creation as a degradation, by successive emanations, and maintaining opinions similar to the *Theosophes* of some among the Christian Gnostics; who paid continual attention to the state of the soul, by meditation on the divinity, as being the source of inexhaustible love. Their science, according to Clemens of Alexandria, consisted of two parts; of which the *first* was occupied with divine things, considering the first cause by which all had been made, and without which nothing that is, can exist; examining the essence which penetrates and unites one substance with another: while they sought to discover the powers of nature and asked to what end they tended. The *second* part treated of human things, of the condition of man, of his nature, and what he ought to do and suffer; here examining his vices and virtues, and the means by which happiness could be attained. †

* Sangermano, from Burmese authority, regarding the felicity and misery of beings that live in this world, states that the Bauddhas say, at the death of a man, animal, or other living being, the soul perishes together with the body; but then, from this complete dissolution another individual springs, which will be man, or beast, or Nat, (celestial spirits,) according to the merits or demerits of the actions done by its predecessor during life. Through this successive series of dissolutions and regenerations, all beings go on, for the duration of one or more worlds; till, at length, they have performed such works as render them worthy of the state of Niban (nirvan), which is the most perfect of all states; or one of quiescence as before explained. Sangermano's description of the Burmese Empire, Chapter iii. par. 6; also Mr Turnours translations of the *Agganna Sutton* of Ceylon; and Mr. Hodgson on Buddhism, Trans: R. A. S. Vol. ii, p. 235.

† These characteristic opinions among the *Christian Gnostics*, to be met with in Clementis Alexandrini Stromatum, Lib. Sept. have been thus embodied by M. Jacques Matter, in his Historie Critique du Gnosticisme, Tome second, page 98. Clemens says, "Dei ergo cultus est continua animæ cura qui est præditus cognitione, et ejus perpetua in Deo occupatio per charitatem, qui nunquam intermittitur. Cultus non qui versatur circa res hominum, unus quidem est qui reddit meliores: alius vero, qui in ministerio occupatur: medicina quidem corpus, philosophia vero animam reddit meliorem. Clementis Alexandrini Opera, Græce et Latine, a Frederico Sylburgio, fol. 700.

The *Bauddhas* or *Sangatas*, as followers of *Buddha Sugata*, are frequently called *Nastikas*, or atheists, being disowners of another world; and the term *Jina* or *Arhata*, importing the subjugation of passion, is used to designate the *Jainas*. The last, in reference to the nakedness of one class, are denominated *Digambaras*, while the less strict sect, "clad in white," are named *Swetambaras*. *Buddha Muni* or *Gautama*, the reputed founder of the Bauddha sect, is the author of *Sutras* (aphorisms,) constituting the body of his doctrine, termed *Agama*; which, from different constructions of the text, has given rise to four schisms or schools, called the Madhyamika, Yogacharya, Sautrantika, and Vaibhashika.* The same division of these sectaries, as known to the Brahmanical opponents of their doctrines, exists in the Buddhism of Tibet,† and appears not to be materially different from the four leading schools of Nepal, as explained by Mr. Hodgson. In as far as we can now judge, the identity of opinions among Bauddhas, in various countries, may be admitted; and we need not hesitate to express our belief that this religion is a uniform system spreading from a common source, however it may seem to vary, by minor differences of tenets, among particular people. It possesses too a body of religious literature; which, whether in Ceylon, Burmah, Nepal, Tibet, China, or Japan, seems identical in its general principles; being more vulgar or refined, atheistical, or theistical, according to the standard of speculative opinion among its followers. In China, Ceylon, and Burmah, the atheistical system seems prevalent, while in Nepal the theistical is generally accepted, and is also acknowledged in Tibet."

On the subject of agreement between the creeds of the *Bauddhas* and *Jainas*, and the principles which distinguish the primitive followers of the latter, the author makes the following observations.

"The appellation of Arhatas, (saints,) by which the more ancient of the Jaina sect appear to have been known, seems applicable to such of the *Digambara* teachers as were deified by their followers; and who except in some minor points of doctrine, recognizing *jiva* (life,) or *manas* (the

* Mr. Colebrooke on the Philosophy of Indian Sectaries, Trans. R. A. S. Vol. i. p. 558.

† Notices of different systems of Buddhism, from Tibet authorities, by Alex. Csoma Korosi. Prinsep's Journal. Vol. vii, 142.

sentient soul), distinct from *Parmatma* * (supreme intelligence), and admitting *akasa* (ether), as the fifth element, were in no respect to be distinguished from the *Bauddas*, or followers of *Gautama*. Like the Christian Gnostics and followers of *Saturnine*, they distinguished the *Budhatma*, (intelligent soul,) or the πνευμα and νους, spirit and intelligence, from the *Chaitana Atma* or ψυχη ζωικη † (the sentient soul). Colebrooke draws the conclusion that the *Sarmanes*, distinguished from the *Brachmanes*, by Clemens Alexandrinus, in the end of the second century of our era, were the Gymnosophists of the Indians; an appellation that seems to him more applicable to the sect of *Jina* than that of *Buddha*, who is said to be the author of distinct precepts, and worshipped as a god, on account of his distinguished virtue. ‡ It does indeed

* Mr. Colebrooke on the *Nyaya*, or dialectic school of Hindu philosophy, Trans: R. A. S. Vol. I, p. 20. and again on the Bauddha sectaries, at page 550; also Delamaine on the Jains, page 416 of the same volume. It appears from the analysis of the Kahgyur, by Professor H. H. Wilson and Alex. Csoma Korosi, that the *Prajna Paramita*, or transcendental wisdom of Tibet, like the Karmika system of Buddhism in Nepal, teaches the existence of the *Chad Ayatan*, or seats of the six senses, admitting manas as the sixth, and recognising *Akasa* (ether), as the fifth element, which though reckoned by the *Nyayikas*, was disputed by the *Bauddhas*, and even by the most primitive *Jainas*, if Mr. Colebrooke's exposition of these doctrines be correct. See Prinsep's Journal, Vol. I. p. 377. Mr Hodgson's quotations in proof of his authority on Buddhism; in Prinsep's Journal, Vol V. p. 89, and Trans: R. A. S. Vol I, p. 551.

† Histoire critique Du Gnosticisme, et de son influence, sur les sectes religieuses et philosophiques des six premiers siecles de l'ere chretienne Vol I. p. 281; and Colebrooke on the Jains. Trans. R. A. S. Vol I p. 551.

‡ Mr. Colebrooke in his account of the Jains, has overlooked one passage of Clemens, that more clearly distinguishes them from the *Bauddhas* than the one he has quoted. It makes particular mention of the *Dehgop*, or pyramidal altar covering the bones of Buddha. "Brachmanes quidem certe neque animatum comedunt, neque vinum bibunt: sed aliqui quidem ex-iis, quotidie sicut non, cibum capiunt; nonnulli autem ex-iis ter in quoque die, ut Alexander Polyhistor in lib. de rebus Indicis. Mortem autem contemnunt, et vivere nihili faciunt: credunt enim esse regenerationem: aliqui autem colunt Herculem et Panem. Qui autem ex Indis vocantur Σαρνοι, idest *honesti* ac *venerandi*, nudi totam vitam transigunt: ii veritatem exercent, et futura prædicunt, et colunt quendam *pyramidem*, sub qua existimant alicujus Dei ossa reposita. Neque vero Gymnosophistæ, nec qui dicuntur Σαρνοι, id est *venerandi*, utuntur mulieribus, hoc enim præter naturam et iniquum esse existimant: qua de causa seipsos castos conservant. Virgines autem sunt etiam mulieres quæ dicuntur

appear that the *Jainas* are particularly meant; and that the sect here intended were the *Digambaras*, who are also called Allobi, अलोभी (exempt from passion,) and are so named by Col. Miles in his account of this religion. But both sects, who appear to have lived together as people of one religion, are indiscriminately called *Arhatas* and *Sramanas*; and among the followers of *Buddha* those who have obtained superior proficiency in *Budhijnan* (divine knowledge), and are segregated from the community of monks, are styled *Arhans*; while the rest of the congregation are divided into different degrees of proficiency, and named *Bhikshu*, *Sravaka*, and *Chailaka*. The laity of the Jains engaged in secular employment, and obeying the precepts of their scriptures, without practising ascetical devotion, are called *Sravakas*; one of the appellations for a Bauddha proficient. Their priests too are the *Saddhus* (Saints), and the *Yatis*, or secular instructors. The former denomination is of similar meaning as *Arhat*, corrupted in Burmah into *Rahatan*, and applied to designate members of the monastic fraternity generally; while in Nepal the same class are called *Baudyas*, and in China *Bonzes*. The general principles of agreement in opinion between the *Bauddhas* and *Jainas*, disavowing the divine origin of the *Vedas*, and appealing rather to reason than to revelation, or authority, accompanied by a tender regard for the preservation of animal life, have been pointed out in the preceding pages; and we are now prepared to consider the extent and quality of the religious literature, possessed by both sects."

The conformity of the Bauddha principles of belief with the tenets taught among the ancient Sabeans, is thus noticed

"Some of the general principles of the Bauddha religion have been noticed in previous pages of this work; so far as such were deemed necessary to the better understanding of changes that have taken place in *Systems of Hindu belief*; and are yet reflected, to the eye of the observer, from the sculptures of *Ellora*, *Elephanta*, and *Badami*. Various systems of philosophy, similar in outline and object to the Grecian schools, are known to exist among the Hindus; and the leading tenets of two of them, the *Sankhya Darshanas*, or the numeral or rational system, are

Σεμνοι. Videntur autem observare cœlestia et per eorum significationem quædam futura prædicere." The Greek appellation Σεμνοι, used in the above passage is like the *Pali Samana*, meaning an ascetic, or devotee, and the same as the Sanskrit *Sramana*.

remarkably identified with the only two *philosophical schools* of the Bauddha religion, the *Madhyamika* and *Yogachurya*. The object of all, however, was, by the exercise of judgment or reasoning, to *discriminate spirit from matter, Purusha* from *Prakriti, or soul from nature*; till having ascended by regular steps to perfection, the sage was able to distinguish the *root*, or *plastic origin* of things, from that modification of them which is distributive, and pertains to individual beings. It was thus he learned to identify himself and all things with the source from whence they came, and to which, after a life of virtuous penance, he was doomed to return, escaping the evil of transmigration into other forms. Final excellence (*nishreyas,*) and deliverance from evil (*moksha,*) are the promised rewards of a thorough knowledge of the principles taught by this religion: but this state of felicity is, among *Bauddhas* and *Jainas*, more commonly expressed by the term *nirwana*, profound calm, or imperturbable quiescence. * The characteristic tenet of the *atheistical Sankhya of Kapila*, and of the *Nepal Bauddha School*, called by Mr. Hodgson *Swabhavika*, seems to be that matter is *eternal* and *productive*, and that *God*, or the intelligence of this system, is rather the energy of *necessity* and *chance*, than the *ruling creator* of the universe. That however which principally distinguishes its opposite, the *theistical School* of *Patanjali*, is that an *intelligent agent* is superadded to elementary matter, and acknowledged as God, or *Iswara*; but who is unconcerned with good or bad deeds, and their consequences, though *omniscent*, and instructor of the earliest beings that had a beginning (the deities of mythology). † This more nearly perhaps identifies itself with the *Prajnika Swabhavika* ‡ system of Nepal, than with the

* See Mr. Colebrooke's Essays on the atheistical and theistical Schools of the Sankhya philosophy; and on that of the Bauddha sect. Trans R. A. S. Vol. I page 95—565.

† Ward's Account of the Hindus Vol I.

‡ Swabhava, a compound of *Swa* (own) and *bhava* (nature), is meant to express that all specific forms result from spontaneous, or instinctive creation; and Prajnika, from *pra* (the intensative prefix), and *jna* (wisdom), implies the material goddess *Prajna*, or intellectual energy superadded to crude matter, for the purposes of creation and the evolution of things. In this it differs from the School of *Patanjali* who makes this agent, or energy, *Iswara*; while the *Aishwarika* School, like the *Brahmanical*, appears to teach that all material forms proceed from *Maya* (illusion), and are in action, or *Pravritti*, but emanations of the deity. "Body, (says the Swayambhu purana of Nepal), is com-

purely theistical, or *Aishwarika School*, which acknowledges the *self existent God*, or the first *intellectual essence*, as *Adi Buddha* revealed by his own will, and immaterial in his essence. The primitive Bauddha atheistical doctrine does not, as before noticed, admit of a triad: nor was such recognized by the two schools of the Saukhya, till a modification of their principles, taught in the mythology of the *Puranas*, ascribed the origin of the world (Sangha), to the union of the active (Buddha), and passive powers of nature, * (Dharma:) which *three*, in the *aggregate* were one person or *deity*; but *distributive*, were analogous to the gods *Brahma*, *Vishnu*, and *Maheswara*. This triadic doctrine is solely referable to a state of *Prarriti*, (energy and change,) or the evolution of things; and may, as Mr Hodgson remarks, be resolved into a *duad*, similar to the *Yin* and *Yan*, † or the imperfect and perfect principles of the *Chinese rational system*, and astronomical creed of the *Sabeans*, and *Fire worshippers*.

Masudi, in his meadows of gold and mines of jewels, ‡ gives so clear a view of the *duolism* of these doctrines, and the introduction of them from *India* into *China*, that I cannot better strengthen the opinions now given than by here quoting, and translating from Arabic, his account. "The religion of the Chinese," says he, "is that of ancient times, a faith

pounded of the five elements. Soul which animates it, is an emanation from the self existent." The last, as we shall have occasion hereafter to show, appertains rather to the modern *Jainas* than to the *Bouddhas*: for, in Burmah at least, it is pronounced heretical: and Sangermano, in his account of the laws of Gautama, says, "The last of these impostors taught that there exists a Supreme Being, the Creator of the world and of all things in it, and that he alone is worthy of all adoration. All these doctrines of the six false gods are called the laws of the six Deitii, demons:" Tandy's Translation of Sangermano, page 81.

* It would thus appear that both the *Swabhava*, and *Prajnika Swabhavika Schools* of Buddhism, *are* essentially atheistical in their principles, and teach materialism: for, as Mr. Colebrooke observes of the Sankhya philosophy, these may be said to affirm two *eternal* principles, *soul and matter*: though *Prakriti*, or nature, abstracted from modifications, is no other than matter. See Colebrooke's Observations on the *Nyaya School*: Trans: R. A. S. Vol: I. p. 95.

† These are the male and female principles, the active and passive elements, the *tamasa* and *rajas* of the Hindus, or the qualities of *depravity* and *passion*.

‡ See his account of the Chinese, in the Arabic history called Murawwaj-az-zahab-wa-maadin-al-jawahir.

called *Shamiaah.* * (Samanian,) similar to the practical devotions of the *Korish*, prior to the advent of *Islamism*; as they worship idols, and turn towards them in their prayers. The intelligent among them invoke by prayer the creator; and place before them, as an altar or type, the images and idols; but the ignorant, from want of knowledge, associate such with the divine creator, and relying on them as his partners, think that adoration of these conducts them to the resting place of God, though, in their devotions, such be considered of inferior rank, and less worthy of worship, than the Lord God, Most High by his glory, greatness and power. The worship of idols, therefore, though inferior to his praise, is the means of approaching him; and such was the cause of its beginning and origin, among the Chinese, through intercourse and familiarity with the *Grandees of India*: an opinion which is prevalent both among the learned and unlearned of the latter country, as we have already related. This is the current tradition among the people of China, relative to the doctrine of the *two principles* and *transmigration*; and though they differ and dispute concerning them; yet, amidst all their rules, they adopt such part of their ancient law as seems best to them. Their country adjoins that of *Soghd* (Sogdiana), and their tenets, as before related, are those of the *Moghaniah*, (Magians or fire worshippers,) relative to opinions on light and darkness. Previously they were a truly ignorant people, and their principles of belief were similar to those of the Turks; till such time as *a fiend of a fire worshipper overcame them by his opinions*, and taught that every thing in this world, is in a state of enmity and opposition; such as life and death, health and sickness, light and darkness, riches and poverty, collection and division, conjunction and disjunction, sunrise and sunset, existence and non existence, day and night, with such like things."—

On the reputed age and origin of the two earliest *Bauddha* schools, the *Madhyamika* and *Yogacharya*, we have the following historical observation. "The four schisms, or schools, to which the opinions of *Buddha Muni, Sakya Sinha, or Gautama* gave rise, have been noticed in the first part of this chapter; and the leading tenets of the *Madhyamika* and *Yogacharya*, with their relative identity to systems of Hindu philosophy, have just been briefly stated. It is of some importance, however,

* This word is derived from the Persian, Shamya شمیا, interpreted heaven; but is explained in the Dictionary called Burhani Kattia, to be a Syriac word meaning significant light, or understanding.

in tracing the rise and progress of Buddhism, to ascertain about what period these schools originated. The third convocation of the Bauddha priesthood, according to the authority of the *Ceylon scriptures*, took place in the reign of *Dharma Asoka*; but agreeably to the *Tibet books* it is assigned to the time of *Kanishka*, a king of Northern India, reigning about four hundred years after the death of *Sakya*. At this time however, his followers had separated themselves into *eighteen sects*, under the four principal divisions already recorded: and from what is related in the biographical account of *Nagarjuna*, who is the reputed author of the *Madhyamika*, it appears, that, as an orthodox follower of Buddha, he denounced the six *Arhatas*, or mortal predecessors of *Gautama*, who are recognized both in China, Tibet, and Nepal. Our knowledge of this fact rests on Mr. Turnour's translation of a passage of the *Raja Tarangini*, a history of Kashmir, which has been differently interpreted by Professor Horace Wilson. I am disposed, however, to prefer the former; as from what I have been able to ascertain of the origin of the *Jainas* from the *Bauddha* sect, and the consequent derivation of their sacred language, the *Prakrit* from *Pali*, their separation seems to have taken place about the time of *Nagarjuna*, and to have originated in some such difference of opinion as gave a preference to *Kasyapa*, the *Brahmanical predecessor* of *Gautama*, and made him the author of a system of religion which was once common to both.

Nagarjuna, the same as *Nagasena* of the Pali work called *Milindapanno*, was, as would appear, a *Bauddha hierarch*, who lived B. C. 43. He is celebrated for a controversy on the subject of his religion, with *Milindo*, the Raja of *Sagala*, a city well known to Greek history, and otherwise named *Euthymedia* or *Euthydemia*, having been so called in honor of the Bactrian king *Euthydemus*; who, after successfully directing an insurrection in Bactria, against the Seleucidæ, pushed his conquests into India, and established this city under his own name. * Some are of opinion that its Grecian appellation of *Euthydemia* was imposed on it by his son *Demetrius*; who, after his father's death, and that of *Menander*, seized on that portion of the *Bactro-Indian* empire which had been theirs. Difference of opinion too exists as to the particular site of this city, which, in the time of Alexander the Great, was called *Sangala*, and is said, in Arrian's history of India, to be situated between the two last rivers of the *Panjab*, the ancient *Hydraotes*, and *Hyphasis*, or

* See Danville's Ancient Geography, Vol. II. p. 165.

the modern *Ravi* and *Vipasa*. The town of *Hurrepah*, south west of Lahore, and distant from it somewhat more than sixty miles, has been, with apparent truth, identified by Mr. C. Masson, as the site of *Sagala*, which, in Alexander's time, was the capital of the *Kathai*, *Kshatriyas*;* and is mentioned in the Kerna Parva of the *Mahabarat* under the name of *Sakala*. † In the latter, it is called a city of the *Bahikas*, otherwise named *Arattas*; who are said to be without ritual, or religious observances; and who, as distinguished from the pure *Hindus*, or followers of the *Vedas* and orthodox system, must have been *Bahalikas*, Bactrians, or of *Indo Scythian* extraction. The inference, that the people of *Sagala* belonged to the latter, is rendered more certain by facts, that this city is mentioned, in the Parthian mansions of *Isiodorus Characenus*, ‡ as belonging to the *Sacæ*, or Scythians; and by Ferishta's history, and the Persian romances again mentioning that one of its Rajas was assisted by *Afrasiab*, in a war against the celebrated *Kaikhusrou*, or Cyrus. A point of connexion, between the *Greco-Bactrian* kingdom and one of the earliest schools of Bauddha philosophy, seems thus established with tolerable certainty, and the name of the city of *Sagala*, met with in the western cave inscriptions, must afford additional proof, that the religious opinions and ritual of Buddhism were not uninfluenced, in the north of India, by the mythology, if not the philosophy of the Greeks. *Nagarjuna's* principal disciples, according to the Tibetan books, were *Arya Deva* and *Buddha Palita*, and though the latter may not be the same as the *Buddha Palit* of No. 23 inscription from the Buddhist tope at Bhilsa, the occurrence of this name, on a monument of such antiquity,

* According to the manner of derivatives from Sanskrit, the Ksha क्ष of the latter is changed into Kha ख, and ther र being always omitted in Pali words, the Sanskrit appellation, for a man of the military classes, *Kshatriya* क्षत्रिय, thus becomes in Pali *Khatya*, a name not far removed from the Kathai of the Greeks, which seems a corruption of the original word.

† See Prinsep's Journal for 1837. p. 57, and Asiatic Researches. Vol. xv. p. 108.

‡ Isiodorus wrote after the flight of Tiridates, about A. D. 36, and mentions the city in these words "Hinc Sanastana Sacarum Scytharum, quæ et Paratacena, schœn: 63, ubi Barda urbs, et Min urbs, et Palacenti urbs, et Sigal urbs; ubi regia Sacarum, propeque Alexandria urbs, et non procul Alexandriopolis urbs: vici etiam sex," Geographiæ veteris scriptores Græci Minores, Vol. II.

should not at least pass without remark. Regarding the probable age of the *Yogacharya* school, the Tibetan books mention that the principal works on this system are referred to *Arya Sanga*, about the seventh century of our era.

Two other schools of Bauddha doctrine, the *Sautrantika*, and *Vaibhashika*, which are rather dogmatical, existed among the early sectaries of this religion; and were, as Mr. Colebroke observes, anterior to the age of *Sankara-Acharya*, and *Kumarila Bhatta*, the last of whom instigated a persecution of the Bauddhas, by which they were driven from Hindusthan. Could the authority of Tibetan books be trusted, the origin of the last of these schisms would be placed in the middle of the sixth century B. C. and immediately after the death of *Gautama*: but there is reason for mistrusting the narrative of events related by the early Bauddha annals, which can only be considered authentic from the well established period of the Emperor *Asoka*. The same division of Bauddha sectaries, as known to their Brahmanical opponents, exists among the Bauddhas of Tibet, whose books mention that the *Vaibhashika* consisted of four principal classes, originating with Sakya's four disciples: who are called *Kokula*, *Kasyapa*, *Upali*, and *Katyayana*.* The latter, called in Pali books *Kachchayano*, was an inspired saint and law giver, who corrected the inaccuracies of *Panini*, the father of Sanskrit grammar; and is acknowledged, by the literature of Ceylon, to have been the author of the earliest *Pali* grammar; from which the oldest compiled version, called the *Rupasiddhi* was composed in the *Dekhan*. † The identity of the author is, Mr. Colebrooke says, involved in the impenetrable darkness of mythology; ‡ but if the era of *Gautama* be accurately fixed, and the early annals of Buddhism allowed to be authentic, the origin both of *Sanskrit* and of *Pali* grammar must be dated six centuries B. C: but this is a subject which is yet imperfectly investigated.

Both the Sautrantika and Vaibhashika sects admit the existence of external objects and of internal sensations; distinguishing, under the former, elements, (*bhuta*), and things appertaining thereto, (*bhautika*) which are organs and sensible qualities. They reckon, under the latter,

* See notices of different systems of Buddhism, extracted from the Tibetan authorities by Alex. C. Koros. Prinsep's Journal for 1838. p. 143.

† Introduction to Mr. Turnour's translation of the Mahawanso, page XXV.

‡ See Asiatic Researches: Vol. VII. p. 199.

intelligence, (*Chita*,) and what belongs thereto, *chaitta*. The elements are only *four*, consisting of atoms, which when conjoined, form compound substances, or bodies, the objects of sense that are apprehended by individual consciousness, or intelligence, dwelling within body. The *Vaibhashikas* acknowledge the *direct perception* of exterior objects, and the *Sautrantikas* contend for the *mediate apprehension* of them, through images presented to consciousness: but both are of opinion that objects cease to exist when no longer perceived, and teach that, both in the physical and moral world, events are but a concatenation of cause and effect, which are *unreal* and momentary. A belief to the contrary, or in the durability of objects, arises from *avidya* or *error*; to remove which, these schools maintain that the object of knowledge is the destruction of percipient power; by which the bound soul, (*badhnati*,) associated with works, (*karman*), obtains liberation, and exemption from further transmigration.

Some doubt exists regarding the recorded antiquity of the Sautrantika and Vaibhashika schools, which are, however, connected, by this last tenet, with a comparatively modern modification of them; called *Karmika* and *Yatnika* systems of Nepal. The former teaches that phenomena are illusory, resulting only from an act of the sentient principle, (*manas*;) which, yet unembodied, falsely believes in their reality.* This school of Buddhism, which, in Mr. Hodgson's opinion, admits of conscious moral effort, is, he conceives, an attempt to remedy the *Swabhavi-*

* The reader is requested to compare on this subject Mr. Hodgson's quotations on the Karmika system, (Prinsep's Journal for 1836 p. 78,) and Mr. Colebrooke's observations on the philosophy of Indian sectaries, Trans. R. A. S. Vol. I p. 562. The following is the quotation from the *Kacha Bhagavati*, given by Mr. Hodgson in proof and illustration of these opinions. "The being of all things is derived from belief, reliance, (pratyaya,) in this order: from false knowledge, delusive impressions; from delusive impressions, general notions; from them, particulars; from them, the six seats, (or outward objects, of the senses; from them, contact; from it, definite sensation and perception; from it, thirst or desire; from it, embryotic (physical) existence; from it, birth or actual physical existence; from it, all the distinctions of genus and species among animate things; from them, decay and death, after the manner and period peculiar to each. Such is the procession of all things into existence from *Avidya*, or delusion; and in the inverse order to that of their procession, they retrograde into non-existence. And egress and regress are both Karmas, wherefore this system is called Karmika. (Sakya to his disciples in the Kacha Bhagavati)".'

to denial of personality, conscious power, and wisdom, of a first cause; which denial necessarily results from the theory of self productive energy of matter, called by the Burmese *dammata*, or fate; * and which leaves such cause without the attributes of moral power, conscious intellectual effort, or will. It was a sequel to the declaration of such opinion, that the universe was *without a moral ruler*, and that the change of deity from a state of *nireritti*, (quiescence,) to that of *prarritti*, (energy,) was effected *without conscious intellectual power*, or free will. If such was the state of a first cause, human nature was equally without a sense of right and wrong, and deprived of free will; for, according to the philosophical schools of Buddhism, man became an irresponsible being, without the power or will of effecting his eternal happiness. To remove this objection, however, to the atheism of Bauddha doctrines, which had linked the physical origin of a first cause with the phenomena of human nature, it was requisite to teach that every free willed man might, through a proper cultivation of his moral sense, and the just conduct of his understanding, realize that external connexion between virtue and felicity, which none of the schools have ever attempted to deny. The *Karmika* system had asserted the superiority of man's moral sense, and the *Yatnika* was produced to advocate the doctrine of his free will; † but both seem comparatively modern, and must have succeeded the *physical theories*, taught by the Bauddha philosophers, regarding the origin of the world and the nature of the first cause. That general law of material energy, or fate, by which one world was destroyed and another reproduced, being made applicable to the phenomena of human nature, primitive men were said to fall off from the perfection of their ancestors, to give themselves up to vice and abandon virtue, and to have their lives gradually diminished; until by their lust, anger, and ignorance, the physical dissolution of the world takes place, and human beings perish only to re-appear under new forms. ‡

* See Sangermano, chapter II para. 1.

† The following quotation by Mr. Hodgson, on "the Swabhavika doctrine, shows its tendency to refer every thing to instinct or fate; "who sharpened the thorn? who gave their varied forms, colors, and habits to the deer kind and to birds? Swabhava! It is not according to the will (ichchha) of any; and if there be no desire or intention, there can be no intender or designer: Bauddha Charitra," Prinsep's Journal, 1836. page 73.

‡ Compare this with the general principles of the Bauddha religion, announced in the first part of this analysis, page 88.

The opinion that these schools are of modern origin, is strengthened by the connexion of the *Karmika* system with some of the leading doctrines of the *Jaina* sectaries; who teach that the duration of punishment, or reward, is according to the powers of the mind and senses; and that, in proportion as they are held in subjection, till apathy or stoical indifference be acquired by discipline, man's happiness or misery is accordingly insured. The act of the sentient power *(manas,)* which, through ignorance *(avidya,)* maintains a belief in the reality of worldly objects, or a desire to maintain its union with them, can, by a higher intellectual effort, *extinguish such sentient desire;* and obtain *moksha*, or release from the trammels of existence, by the realization of true knowledge that all events of this world are unreal.* Contemporary with the adoption, by the Bauddhas, of the Karmika doctrines, the existence of a fifth element (*akasa*), having been admitted, and *manas*, or the sentient principle, being at the same time acknowledged as the sixth, and called *vajara satwa*; these, together with the four original elements, are represented by the six *Dhyani Buddhas* of the *Aishwarika*, or theistical school; and to which, Mr. Hodgson thinks, the *Karmika* and *Yatnika* systems, on the subject of human nature, more naturally attach themselves than to the physical *Swabhavika*.†

The material *Swabhava* places nature supreme, and considers it as *Iswara*, or God; but that modification of it, which unites a transcendental omniscient principle, called *Prajna*, with the material one, typifies such as the goddess *Dharma*; who is the first member of the *Bauad-*

* The reader may consult on this subject, Major Delamaine on the *Karmas* of the *Jains;* and what Mr. Colebrooke has written on the opinions of the Bauddha sect. The latter, from Brahmanical sources, is in direct accordance with Mr Hodgson's quotation, No 4 on the *Karmika system*. These two dogmatical schools are like the exoteric, or practical course of discipline prescribed by Pythagoras, by which, the corporeal parts of man's nature being mortified and subdued, the intellectual portion of it was fitted for the contemplation of immutable truth, and union with the divine nature.

† See note 15 on the sketch of Buddhism. These dogmatical schools have a theistical tendency; and, like the Tantrika portion of the Kahgyur, almost teach the doctrine of *Maya*, or illusion, regarding the material existence of things. The reader may refer to the article of this Chapter pointing out the assimilation of doctrines taught by the last volume of the Nepal Tantrika works, with those of the Saiva Hindus.

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dha triad, and is associated with the type of nature's energy, or *Buddha*, as the *second*, both of which give rise to *Sangha*, or union, as the *third*. *Dharma* is here considered the plastic, or elemental state of all things, to which is united for the production of effects in the versatile world, the second member of the *Bauddha* triad or the efficient cause of things. A yet more decidedly theistical system, the *Aishwarika*, represents intellectual essence supreme, and calls it *Adi Buddha*; who, in producing effects and changes in the material world, operates through *secondary causes, or the five elements*, of which the *Dhyani Buddhas* are types; and to which are linked individual energies, named *Bodhisatwas*, operating in conjunction with passive conceptive principles called *Saktis*. But when the deity is represented in unity, he is called *Adi Buddha*; and has, according to Mr. Hodgson's quotations five bodies, five jnyans, and five sights, and is said to be the *mukut*, (crest,) of the five Buddhas, without partner. * The latter from its representation in the *Phrabat*, or solar foot, would appear symbolical of the solar ray; and the *Dehgop* of the caves is but a *type* of the *corporeal frame* of the *five elements*, or *Dhyani Buddhas*; which are the vehicles of the subtile person, or spirit, and are generally found represented on four sides of the *Dehgopas*, † both in India and Nepal, the centre of which is supposed to be occupied by the fifth *Vairochana* or light. The *Karmika* and *Yatnika* systems of Nepal have admitted the sentient principle, *manasa*, as the sixth *Dhyani Buddha*; but all these are personifications, or *Buddhas* of celestial origin. Those of mortal birth, before enumerated, and of whom

* Prinsep's Journal, 1836, page 85, and quotation 14.

† The *Dehgop* may be considered an aggregation of the elements, effected by the presidence of spirit, and, viewed as a type of elemental creation, presents an analogy to the *mundane egg*, from which, according to the doctrines of antiquity, sprung the first born of the world. In Colonel Sykes's Notes on the religions, moral, and political state of ancient India, (Journal of the R. A. S, Vol VI, page 267.) taken chiefly from the travels of the Chinese Buddhist priest Fa Hian, the believers of this doctrine are distinguished from the primitive followers of *Sakya* or *Gautama*, and are denominated sectaries, or partisans of *Anda* (the Egg). There seems no just ground for not considering this doctrine part of original Buddhism, though it may have been rejected by Sakya; as it is recognized in the inscription from the Dehgop of the Karli cave, and in the inscriptions from the Bauddha caves of Beira and Bajah; a translation of which by me will be found in Vol. I of the Society's Journal, page 438.

Gautama is the last, having obtained plenary power, or omnipotence, *through union with divinity*, have been manifested during the different regenerations of the world: of which there are said to have been *twelve*, reckoning backwards from the present *kappo*, or creation, in which four Buddhas have already appeared and one is yet to come.

The Buddhas acknowledge three different kinds of beings, the material and generative, (*Kama;*) the material, not procreating by the usual laws, (*rupa;*) and the immaterial, (*arupo,*) who do not generate at all. The first order of beings including mankind and genii, (*Nath,* *) ascend according to their good or evil conduct, by progressive transmigrations to states of final beatitude, (*nirvana,*) where they are exempt from further change, or are doomed to pain and punishment in the mansions of the demons, or by repeated worldly transmigration into the bodies of inferior animals. The virtuous, through the merit of their actions, when finally emancipated from existence, are transported to the *bhuvanas* of *Buddha*, while the wicked are hurried to the six abodes of the *Daityas* or *Naraka*, the hell for sinners, fabled to be below the world of waters, (*Jalakand,*) which support the earth. Mankind and their protecting genii (*Nath,*) occupy the earth, and atmospheric region above it; which last is variously divided into *bhuvanas*, or mansions, called by the Ceylon scriptures the *Deva-lokas*. Above these are the three *bhuvanas* of *Mahadeva*, the six of *Vishnu*, and the eighteen of *Brahma*; which are the places of the *visible gods*, or of those celestial physical causes, or beings, which are destined, at the dissolution of worlds, to be the germs of future ones. Above all are the *Buddha bhuvanas*, of which the *Agnishta* is the highest, and the abode of *Adi Buddha*. Below it, some accounts place ten, and others thirteen *bhuvanas*, inhabited by the emancipated *Arhatas*, *Bodhisatwas*, or faithful followers of Buddha, who have passed into a state of *nirvana*; where from *finite* they become *infinite* beings, and the same "with divinity."

In the following account of the Bauddha system of Cosmography, Astronomy, and Astrology, we are made acquainted with the origin of the

* Col. Sykes, in his notes on the religious, moral, and, political state of ancient India, (Journal R. A. S. page 289 Vol VI) seems to think that the worship of the Hindu *Devatas* and of the *Naths*, or spirits, is a corruption of original Buddhism; but the inscriptions of Western India and the Bauddha scriptures of Nepal and Ceylon prove the contrary to be the fact, and that this worship was part of the original system.

religious principles of Buddhism; which, connected with systems of sidereal astrology, and the worship of the planetary powers, will explain to us why these principles assimilate with tenets taught among the ancient Sabeans. "Bauddha opinions, regarding the generating influence of the atmospheric region and mansion of the planets, have been explained in the previous pages; and, as has been shewn, this *intermediate aerial space*, peopled with genii, or the *Nath*, possesses the power of secondary causes in the business of creation. The sun, moon and stars, here illuminate the world, divide day from night, distinguish the seasons, and indicate good or evil to mankind. * This belief inculcates that *malignant beings exist inimical to man*, while other *benevolent genii* exercise their influence in protecting him, and hence originates the practice of propitiating the latter, or averting the malignancy of the former, by the astrological worship of the *Rasi*, or nine planets. † Besides the seven heavenly constellations, the Bauddhas reckon the ascending nodes, *Rahu* and *Ketu*, as two others; which are invoked, with offerings and song, in cases of sickness or important undertakings in life. We are yet little informed on the subject of their astronomical system; but from what Sangermano mentions of the Burmese notions, it appears not materially different from that of the Jainas, excepting that the progressive falling downwards of the earth in space, and the existence of two suns, two moons, and two sets of planets, for the northern and southern quarters, form no part of Bauddha astronomical belief. It is maintained, however, that mount *Meru* exists in the middle of the earth, encircled by seven ranges of hills, between which are seven rivers, and that the sun, and moon, and planets revolve round it, in parallel orbits; illuminating successively four great islands; of which *Jambu-dwipa*, or India, is the southern one. The different faces of mount Meru, toward the four cardinal points, reflect the solar beams of various colours, and communicate such respectively to the islands and

* Sangermano Chap. III. para. 14.

† See Mr. Upham's account of the Bali in Ceylon, chap. x. This system of sidereal astrology, called in Ceylon *Balisk*, or the worship of the planetary powers above, is similar in all respects to the Syrian idolatry of worshipping and propitiating the *Balim*, or host of heaven, which protected and influenced mankind in health and sickness. These are the spirits of the stars, the Ζωοφυλακες or the sentinels of heaven; and, in the Greek inscriptions which I copied from the gate of the great mosque at Damascus, (once a Christian church, and previously a heathen temple,) they are called "the things of eternity, and of uncontrolled power in *every* period of birth and generation."

inhabitants of these quarters. Neither Bauddhas nor Brahmans agree about the particular colours of the different faces; though they generally enumerate them *white* on the east, *yellow* on the south, *green* or *black* on the west, and *red* on the north.* Four kings of the *Nath* are said to preside over these quarters; with whom, as types of the elements and of colour, the *Dhyani Buddhas* seem to have an analogy; as *Akshobhya*, who occupies the eastern niche of the *Dehgop*, is described of a blue colour, and *Ratnasambhava*, on the southern, is said to be yellow or golden.† Around the summit of mount Meru is arranged the *Bhuvana* of *Indra*, or the *Tavatinsa heaven*; where flourishes the sacred tree *Kalpa-vriksha*, granting every desire. The *Lokapalas*, or eight regents of the heavenly quarters, worshipped by the Bauddhas and Jains, are with the elephant of *Indra*, inhabitants of this celestial mansion: in which the *Nath* and *spirits* of the good, not yet joined to divinity in *nirvana*, shining by their own light, need not that of the sun. ‡

The Bauddhas have a system of solar Zodiacs, analogous to ours: wherein the names of the twelve constellations manifest their connexion with the *Greek* and *Arab* schemes of the Zodiac originally derived perhaps from the *Chaldeans*. An annual movement of the sun and planets is admitted, in addition to their diurnal motion; and a gradual declination of them, *north* or *south*, producing the various seasons, is taught with the hypothesis, that there are three distinct paths in the heavens, an *inner*, *middle*, and *outer*. The inner corresponds to our summer solstice, or the tropic of Cancer; the middle to our equinox, or the equator; and the outer to our winter solstice, or the tropic of Capricorn. The inner part is said to be nearest mount *Meru*, and corresponds with the hot season; the middle to the rainy; and the outward, farthest removed, to the cold, when the sun is most distant. They are otherwise named the paths of the goat, ox, and elephant; and as the latter animal delights in cold and

* See Vishnu Purana, translated by Wilson, 4to at note 2, page 167.

† Hodgson's sketch of Buddhism, Trans. R. A. S. Vol. II page 230. and the note at page 29 of the original work.

‡ The ancients supposed human souls were invested after death with a subtile body, which was inseparable from it, until the time of its final exemption from transmigration; and this they called the αὐγοειδὲς or lucifrom body, spoken of by the New Platonists, or Christian writers of the fourth and fifth centuries, who repeated the tenets of Pythagoras and Plato. See Colebrooke's translation of the Sankhya Karika, page 136.

damp places, he appears to have been selected to distinguish the season when the sun, passing to the south, brings the termination of rain and the production of cold.

The third chapter contains translations of the cave inscriptions, which shew their connexion with the Bauddha religion, and those abstract principles of metaphysical belief that constitute the original system. The following is an extract, "The more intimately we become acquainted with the principles of the Bauddha religion, the stronger will be our conviction, that such principles have their origin in physical and metaphysical opinions, on the subject of a first cause, made applicable to explain the phenomena of the world and of human nature, and that such opinions were closely connected with the worship of the heavenly bodies, and the Sabean idolatry. This Sabeism too, instead of being engrafted on the Bauddha system, appears to have preceded it, and to have been the source from whence it sprung. But whatever be the conclusion deduced, regarding the relative antiquity of the two systems, their present union in Siam and Tartary, has been indicated by preceding observations; and the *translated cave inscriptions* will tend to establish a fact that the *astrological belief in spirits*, which commenced with the first astronomical observations, was early connected, in the *Greek* and *Bauddha* schools of philosophy, with opinions of those who essayed to explain the origin of the world, and the nature of that cause producing its versatile effects. *Philo*, a Jewish writer of Alexandria, acquainted with the philosophical opinions of the Orientals and those of the Greeks, endeavoured, some time before the Christian era, to convince the world of the excellence and superiority of a *secret system of knowledge*, which had been long since founded in the bosom of the Jewish religion. Like the Bauddha system it taught that the ætherial region was peopled with inhabitants of an immortal nature; some of whom kindred with the earth, and addicted to its pleasures, descended to attach themselves to other spirits, for which, they had a worldly desire; but that others of them, disgusted with the vanities of life, considering the body as a prison, fled on light wings to heaven, where they passed the remainder of their existence. Others of them, yet more pure and excellent, disdaining all the temptations that earth could offer, became the ministers of the supreme God, and the agents of the great King, seeing all and understanding all. Similar opinions are maintained by the Bauddhas regarding the origin of

mankind; and Mr. Hodgson's account of this subject seems but a version of what is related in Genesis, about the association of the Nephilims with the daughters of men;* by which mankind, falling from their state of original purity, came under the dominion of the passions, and a spirit of discord, as already noticed in the general principles of this religion. The Nepal statement of the same history is that the half male and female beings, inhabiting in light and purity, the *Abhaswara Bhuvana*, and who had never yet in their minds conceived the sexual desire, or known the distinction of sex, having eaten of the earth, at the instigation of *Adi Buddha*, lost the power of flying back to their *Bhuvana*, and were obliged to remain on earth; where they lived on its fruits, and associated with each other. † This legend appears to have been taken from a confused idea of Mosaic history; and may have been introduced into the Bauddha religion when the *Indian astronomers*, with a knowledge of it, framed the system of the *Varaha Kalpa*. But on this head, and the connexion of the Bauddha religion with the worship of the sun, the translated inscriptions afford information; and are at least, the only authentic documents of antiquity, which embody primitive principles of the system beyond the chance of sectarial interpolation."

Several translations of the inscriptions from the caves of western India are subsequently given, and establish the connexion and union of Buddha religious principles with those of the *Sabeans* and followers of *Mithra*: which union probably arose from a community of ideas that *Kraka*, the sun, or holy fire was, in his igneous essence, the same with the deity of creation, or Vulcan, the *Hephaistos* of the Greeks, the *Opifex Mundi*, or the mundane artisan, and the same as the *Viswa Karma* of the Hindus: for according to the Saiva faith of the latter, the *Mithra* of the fire worshippers is the *Unadi*, or *Agnilinga*, the pillar of radiance of the Linga Purana, from which the deity first manifested himself for the creation of the world. It is true indeed that the *Atthakatha* and Bauddha annals of Ceylon declare the *adoration of the sun and fire heretical*: ‡ but while *Gautama*, or *Buddha*, may have originally confined his

* Genesis, Chapter VI.

† See Hodgson's second question in his Sketch of Buddhism T. R. A. S. Vol II page 234.

‡ Turnour's examination of the Pali Buddhistical annals, in Prinsep's Journal, Vol VI. p. 733.

religious ordinances to *Dhamma*, (morality,) and *Winaya*, (discipline). his system was early corrupted by its union with the principles and practice of the Sabeans and fire-worshippers. The monogram preceding inscription No 8 Plate I. from the caves of Junir, is of constant occurrence on the gold coinage of Kadphises, and on the Indo Scythic, or Indo Mithraic series of coins, from Kabul and the Punjab. Coin figure I, plate XXXVIII Vol IV (Prinsep's Journal page 650,) of this series is unique and of particular interest; as the king on the obverse is represented seated on a war charriot, similar to the chariot of the sun, while the inscription on the reverse, reads *Muha rejasa rajadisa Jina sidato, mitra-rato Dhimukta satha nanada*, translated, *of the great king, the source of energy, Jina the establisher, the supreme emancipated Saint of Mithra, the preserver*. The connexion of this series of coins with the Bauddha system of religion is yet further established by the Pali name of Buddha, "*Satha*," being found in Greek on the coin fig; 13 plate XXXV (Prinsep's Journal, Vol. V, p. 548) and written. ΣΑΘΟΥ

This part of the subject is further illustrated in *chapter fourth*, containing the author's observations on the symbolical marks preceding the inscriptions; and their similitude to those on coins found west of the Indus and in the Punjab. In the last or *fifth chapter* the history of Buddhism is traced and illustrated, whereby it appears that this religion arose out of the ancient Persian worship of the expanse of the firmament, under the name of *Jove*, (or the Hindu Indra,) with the deities of the sun, the moon, earth, fire, water and the winds, to which the Babylonian and Persian festival of *Sakaia* was dedicated and held sacred. But our analysis must here stop, and those requiring further information must refer to the original work; which will be soon issued from the Indian Press, to be immediately afterwards republished in England with additions and improvements.

Art. X.—*Literary and Scientific Notices.*

We propose to devote two or three pages of the Journal, under this head, to interesting literary dissertations, from other works, on *Philology, Palæography, Antiquities, and discoveries in Geography* and *Science*;

and will feel obliged to contributors or correspondents, who may kindly favour us with *short* analyses of information on such subjects.

1.—*Stewart's Lydian and Phrygian Inscriptions.*

Mr. John Robert Stewart, formerly of Bombay, and well known for his devotion to literary pursuits, who in the spring of 1837, made a tour from Smyrna to Constantinople, visiting the vicinity of Dongala, Nacolæ, now Sidy Ghazy, Doryleum, and Brusea, has lately published the *Inscriptions*, from the ancient monuments of Lydia and Phrygia, written in the most archaic form of the Greek letters. The words are divided, by points, like those of the *Hamaiyaric Inscriptions* of Southern Arabia; and are alternately written from left to right, and from right to left. Mr. Stewart has not attempted to solve the meaning of these inscriptions; and does not appear aware that Dr. Grotfend, in revising the observations of M. M. Letronne and Saint Martin on similar inscriptions found in Lycia, has partly made out the meaning of inscription No. 1. We have only yet been able to make a hasty examination of their contents; ascertaining, however, that the language used is a mixture of *Persian* and *Phœnician* words, recording the dedication of the stone monuments, on which these inscriptions are found, to the *Artari* or *Kabiri*, signifying the *great* and *powerful* ones, or the *Hero-gods* and idols of chief note in Phrygia and Lydia.

2.—*Antimony and Lead mines of Beluchistan.*

Major George LeMessurier, who surveyed the route, via Sohrab and Bagwana, from Kelat to Sunmiani, taking the latitudes and levels of the country, visited the antimony mines of *Seykran*, near *Bagwana*, and found the antimony in chrystals of an inch square, imbedded in black vitrified rock. The mines appear to have been extensively worked at some former period; but the want of water and fuel in the neighbourhood, must always prevent the successful working of these mines as a profitable speculation. The lead ore found was of inferior quality and small in quantity. There are also mines of inferior copper ore, near *Turkuh*, but the exact locality is kept a secret by the people of the country.

3.—*Central Africa and Navigation of the Jub river.*

The river Juba or Jub, on the Suhaili coast of South Eastern Africa, which debouches in 0. 38, south latitude, is known to be navigable in boats

for three months; and could in all probability be made available for establishing a commercial communication with the south western provinces of Abyssinia, and its capital Shoa. Recent intelligence, from the well known missionary Dr. Krapt, seems to establish the practicability of navigating the Jub river as far as *Garague*, distant from *Shoa* little more than 70 miles; and, as the disposition of the natives inhabiting its banks would not be inimical to further exploration of this celebrated stream, it behoves our Indian Governments, both for the interests of geography and commerce, to adopt measures for obtaining more minute and accurate information than we at present possess regarding it. An iron steamer and one of our east off pilot brigs, or schooners, might be placed, with an efficient establishment at the disposal and under the direction of some well qualified officer of the Indian Navy, who is acquainted with this part of the coast; and might be willing to lend both his talents and his energies for securing the success of any undertaking to navigate and explore this river; and for establishing such a friendly intercourse with the natives of the country as might lead to permanent commercial advantages. Lieutenant W. Christopher, already favourably known by his geographical reports, and an enquiry into the present resources of Eastern Africa, is doubtless well fitted for the execution of any such expedition as now proposed for the exploration of the Jub river.

Art. XI.—*Extracts from the Proceedings of the Society.*

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held, in the Library rooms, on Thursday the 13th June 1844.

The Hon. J. H. Crawford, President, in the Chair.

Read and approved the minutes of the last meeting.

The following gentleman was proposed as a member, to be ballotted for at the next meeting of the Society:

W. Seton Brown, Esq. by G. Buist Esq. LL. D. seconded J. F. Morier, Esq.

N. A. Dalzell, Esq. proposed as a subscriber to the Library by Manockjee Cursetjee, Esq. seconded by the Secretary, was admitted agreeably to the regulations of the Society.

The following donations were laid on the table:

To the Library.

By Government, copy of General Circular Orders passed by the Sudder Adawlut Bombay.

To the Museum.

By the Rev. G. Pigott, a small collection of shells from Zanzibar and Aden.

By Lieut. C. W. Montriou, I. N. skeleton, of an ant-eater, *Manis*.

This animal was given *alive* to Lieut. M. through the kindness of Mr. Ellis, C. S. Ratnagherry, but unfortunately it died after having been kept for fifteen days.

* The Secretary then presented and read a paper on the history of the Kalhora dynasty of Sindh, by Captain James McMurdo.

On the motion of Dr. Burnes K. H., seconded by the Hon. the President, the thanks of the Society were voted to the Secretary, for the interesting paper presented, and it was resolved that it be published in the forthcoming number of the Society's Journal.

The Secretary was also requested to return thanks for the various donations presented to the Society.

The meeting then adjourned to Thursday the 11th July next.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held, in the Library rooms, on Thursday the 11th July, 1844.

The Hon. J. H. Crawford, President, in the Chair.

Read and approved the minutes of last meeting. W. Seton Brown Esq. and C. Forbes Esq. C. S. having been ballotted for, were duly elected members of the Society.

Assistant Surgeon J. Jephson, was proposed as a member by J. Morier, Esq. and seconded by the Secretary, to be ballotted for at the next meeting of the Society.

The following communications were read:—

The Secretary submitted a circular, from the Sub-Committee of the Museum, suggesting that they should be empowered, in accordance with Art. III, of the rules of the Museum, for the better preservation of such Zoological specimens as are at present suspended in the gallery of the Society's rooms, to transmit them to the Zoological Society of London, where they would be better appreciated.

Resolved.—That the sense of the next meeting of the Society shall be taken on the subject of the above rule; whether the words, "and dispose of donations, "empower the curators to exchange, or give away, at their discretion, articles belonging to the Museum, without the previous sanction of a monthly meeting of the Society.

Read, a letter from M. M. Etiene d' Quatremere, dated Paris, 6th May 1844, acknowledging the receipt of the Secretary's letter, intimating his election as an Honorary Member of the Society, and conveying his thanks for the distinction thus conferred on him by the Society.

Read, a letter from Chas. C. Rafn, Secretary to the Royal Society of Northern Antiquarians, dated Copenhagen, 5th October 1843, intimating the Society had presented to the Bombay Asiatic Society, a copy of their memoirs, from 1840 to 1843; requesting, at the same time, that the other parcels enclosed in the packet, and addressed to individuals, might be transmitted accordingly.

Resolved—That the Secretary be directed to return thanks for the donation, and that the parcels adverted to in Mr. R's letter, be duly forwarded by the Secretary.

The following donations were laid on the table:

To the Library.

By Government, copy of Meteorological Observations kept at Madras from the year 1822 to 1843.

By the Royal Society of Northern Antiquarians, Memoires de la Societe Royale des Antiquaires du nord, 1840-1843. Section Asiatique.

Specimens of Glyphography or engraved drawings from the copper surfaced blocks, by the Patentee, Mr. Palmer, were submitted to the meeting, with an intimation that Major T. B. Jervis, F. R. S. had been appointed sole agent for India and China, to receive orders from Societies and other public bodies desirous of illustrating publications, on Literature or Science, by this cheap mode of engraving.

To the Museum.

An Hippocampus, from Vizadroog, by Lieut. C. W. Montrion, I. N.

A Turittella, by Lieut. Christopher, I. N.

A Collection of Specimens of rocks and shells, fossil and recent, from

various places in England and Ireland; including a series of the plans of the coal measures, were presented by Professor Orlebar.

The Secretary then presented, and read the following papers to the Society.

1st. An account of the temple of Somnath, translated by the Secretary from the Persian of the Appendix to the *Mirat Ahmedi*, to which is added a translation, from Sanskrit into English, of an inscription at *Patten Somnath*, relative to the restoration of the temple in Samvet. 1272. A. D. 1215, by W. H. Wathen Esq.

2nd. A discourse on the form of the earth, or the science of Geography, being the introductory chapter of the *Nuzhat-al-Mushtak*, or amusement for those requiring it, in an account of great towns, countries, provinces, islands, cities, and quarters of the world, by *El-Edrisi*, translated from the Arabic by the Secretary.

Resolved, that the thanks of the Society be given for the donations and papers presented.

The meeting then adjourned to Thursday the 8th of August next.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in the Library rooms on Thursday the 8th of August, 1844.

The Hon. J. H. Crawford, President, in the Chair.

Read and approved the minutes of last meeting.

Assistant Surgeon J. Jephson, proposed as a Member, was balloted or and duly elected.

William Pole Esq. proposed as a Member, by J. Harkness Esq. seconded by A. B. Orlebar Esq., and W. Acland Esq. proposed by A. S. Le Messurier Esq. seconded by Colonel G. R. Jervis, to be balloted for at the next meeting of the Society.

The following motion, of which due notice was given, was then submitted.

"That the sense of the next meeting of the Society be taken, whether the words, "and dispose of donations," as specified in ART. III. of the rules of the Museum, empower the curators to exchange, or give away at their discretion, articles belonging to the Museum, without the previous sanction of a monthly meeting of the Society."

It was thereon resolved—

That such transfer shall be left at the discretion of the curators, and

recorded in the proceedings of the succeeding monthly meeting.

The following donations were laid on the table—

To the Library.

From the Government of Fort Saint George, through the Government of Bombay, the 6th volume of the Madras Astronomical Observations recently published at that Presidency.

From the Government of Bombay; No. VI. Transactions of the Medical and Physical Society of Bombay.

From J. J. Waterston Esq. a few volumes of the Civil Engineer's and Architect's Journal's.

From Captain Postans, through Messrs. Frith and Co. Copy of a lithographed drawing of the celebrated temple of Somnath.

To the Museum.

The capital of a column, and two broken female images, from Zenobia on the Euphrates, by Lieut. C. D. Campbell, I. N. The capital is from a double line of columns which formed the sides of a road leading from gateway to gateway in a fortified enclosure. The figures were corner supports in a square stone edifice with vaulted roofs. The place has been termed "Zenobia" by the expedition, under the supposition that it was built by the Queen of Palmyra; also, a large collection of shells, and some Echindæ from Aden, by Captain S. Young I. N. were presented through A. B. Orlebar Esq.

The Secretary then read the following communications to the meeting:

1st. A letter, from the Secretary to Government in the General Department, dated the 2nd instant, accompanying copy of a dispatch (No. 23, dated 31st May last,) from the Hon. the Court of Directors, enclosed with a communication from the Royal Asiatic Society of Great Britain and Ireland, relative to the preservation of the "Cave temples of India," and the desired execution of correct drawings of the fresco paintings found therein. In this letter the Hon. the Governor in Council expressed a hope that the Society would co-operate with Government in carrying out the objects of the Hon. Court and the Parent Society.

It was thereon resolved that the Secretary be instructed to write, in reply, that the Society is ready to co-operate with Government in any

way it may point out for obtaining copies of the drawings specified in the letter of the Hon. the Court of Directors, or in carrying out a plan for preserving from decay, the sculptures and inscriptions in the Caves of Western India. The Secretary, at the same time, noticed that the lithography of the fresco drawings, copied for Mr. Wathen, from the Caves of Ajanta, was now completed, along with copies of the inscriptions from Kanari, Karli, Beira, Bajah, Mahar, Junir, Ajanta, and Nassick, which he had translated, and expected to publish about November next.

* 2nd. Two ancient inscriptions, on copper, in the Cave character, translated into English by Ball Gungadhur Shastree Esq. and accompanied by a letter from him relative to the probable dates of the grants. The first of these, now in possession of the Secretary, which, with the Devanagri transcript, had been handed over to B. Gungadhur Shastree Esq. is a grant of the village Aland on the Bhima, to the sons of Lakshmana Swami, of the family of Kanshika, by *Vishnuvarddhana*, son of Kirti Varma, son of Rana Vikrama, of the Chalukya family, claiming descent from the lunar race, and formerly ruling over the Kuntala Desha, of which Kaliani, in the Dekhan, was the capital. It is dated in the eighth year of the King; and, as *Vishnuvarddhana* is herein called the nephew of *Palakeshi Vallabha*, whose date is well known from many grants, the present one cannot be later than A. D. 733, and may be as early as the beginning of the sixth century.

The original of the other grant, also in the Cave character, and in the possession of Narsoo Bhalu of Nandgoan, in the Northern Konkan, belongs to the same family of the Chalukyas; being in the name of Kirti Varma Raja, son of *Palakeshi Vallabha*, who conquered the kingdoms of Chera, Chola, and Pandya, or Mysore, Tanjore, and Madura. It is without date, but the land was granted for the support of the worshippers of *Kapileswara*, or *Siva*, as worshipped by the Kapilas, a sect allied to the Bauddhas, and who, as devotees of the skull necklace, are represented, as associated with them, by the sculptures of the caves of Ellora.

The Secretary was directed to return thanks to the respective donors, and the meeting adjourned to Thursday the 12th of September next.

At a monthly meeting of the Bombay Branch of the Royal Asiatic society, held in the Library rooms on Thursday the 12th September 1844

James Burnes, K. H. F. R. S. Vice President, in the Chair.

Read and approved the minutes of last meeting.

Professor Wm. Pole F. R. A. S. and W. Acland Esq. proposed as Members, were ballotted for and duly elected.

The following papers were laid before the meeting by Dr. Buist:

"1st A paper on the Runic monuments found in Scotland and Ireland, and not known to exist in any other part of the world. These consist, for the most part, of magnificently sculptured crosses, ornamented with representations of hunting, and of battle scenes, of religious processions, &c. Many of the animals represented on them, such as elephants, lions, monkeys &c. are obviously Oriental. Some of the figures are apparently hieroglyphical, though their meaning is unknown. The attire and occupations of the individuals represented throw a considerable light on the manners of a period to which written history does not extend. The object of laying the paper before the Society was to endeavour to elicit information on the subject, by inducing a search after analogous relics, if any such exist in India.

2nd A paper on the use of Mr. Adie's Barometer, with some suggestions for an improvement in its structure, so as to render it less liable to accidents in tropical climates: with suggestions, for the improvement of the marine Barometer, so as to increase the delicacy of its readings and adapt it either for sea or land purposes; and a notice of an improvement, suggested by Dr. Glen, on the syphon Barometer, so as to adjust the scale at once, and get rid of double readings.

The thanks of the Society were voted to Dr. Buist for the papers; and it was resolved—that they be published in an early number of the Society's Journal, with such illustrations as may be found practicable.

The following donations were laid on the table:

To the Library.

1. By Government two lithographed copies of the Mahratta translation of the Mithakshara and Dhyaya Bhag.
2. From Mr. Shirra, through Messrs. Forbes and Co. Copy of the Maulmein Almanac and Directory, and general commercial trade list, for 1844, accompanied by a map of Maulmein and its environs.
3. By the Bombay Geographical Society, its Transactions from September 1841, to May 1844.
4. By C. J. Erskine Esq. through the Rev. J. M. Mitchell, the follow-

ing Samskrit M. S. S. Linga Purana, Garuda Purana, Devi Mahatmya from the Markandeya Purana, Parashara Upa-Purana.

To the Museum.

1. By Major General Sir H. Pottinger, Bart, G. C. B. A number of very curious Chinese figures, carved in wood, representing the imaginary rewards and punishments of a future state. The collection consists of exact copies of the originals; which were formed of clay, and taken, during the campaign of 1841-42, from a Buddhist temple at Yenyaou, a city in the province of Cheakiang, in China.
2. By Major General Sir H. Pottinger, Bart., G. C. B. A tablet of wood richly carved, and ornamented, in honor of the Emperor of China, taken from a Joss house near the the city of Chinkeangfoo. The following is a translation of the inscription it bears:
"A thousand times ten thousand years! may the Emperor live ten thousand times ten thousand years"
3. By E. E. Elliott Esq. A small collection of shells, and a fine specimen of dog-tooth spar.
4. By C. B. Skinner Esq. Twelve bottles of snakes, fishes, insects, &c.
5. By Captain J. Young I. N. Specimens of flying fish from the Arabian Coast.
6. By Dr. Leith; Specimens of Apophyllite &c. from the Deccan.

The best thanks of the Society were voted to the respective donors.

The meeting then adjourned to Thursday the 10th October next.

JOURNAL

OF THE

BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

JANUARY, 1845.

ART. I.—*Observations on the Mahomedan Architecture in Cairo.* By A. B. ORLEBAR, M. A., Elphinstone Professor.

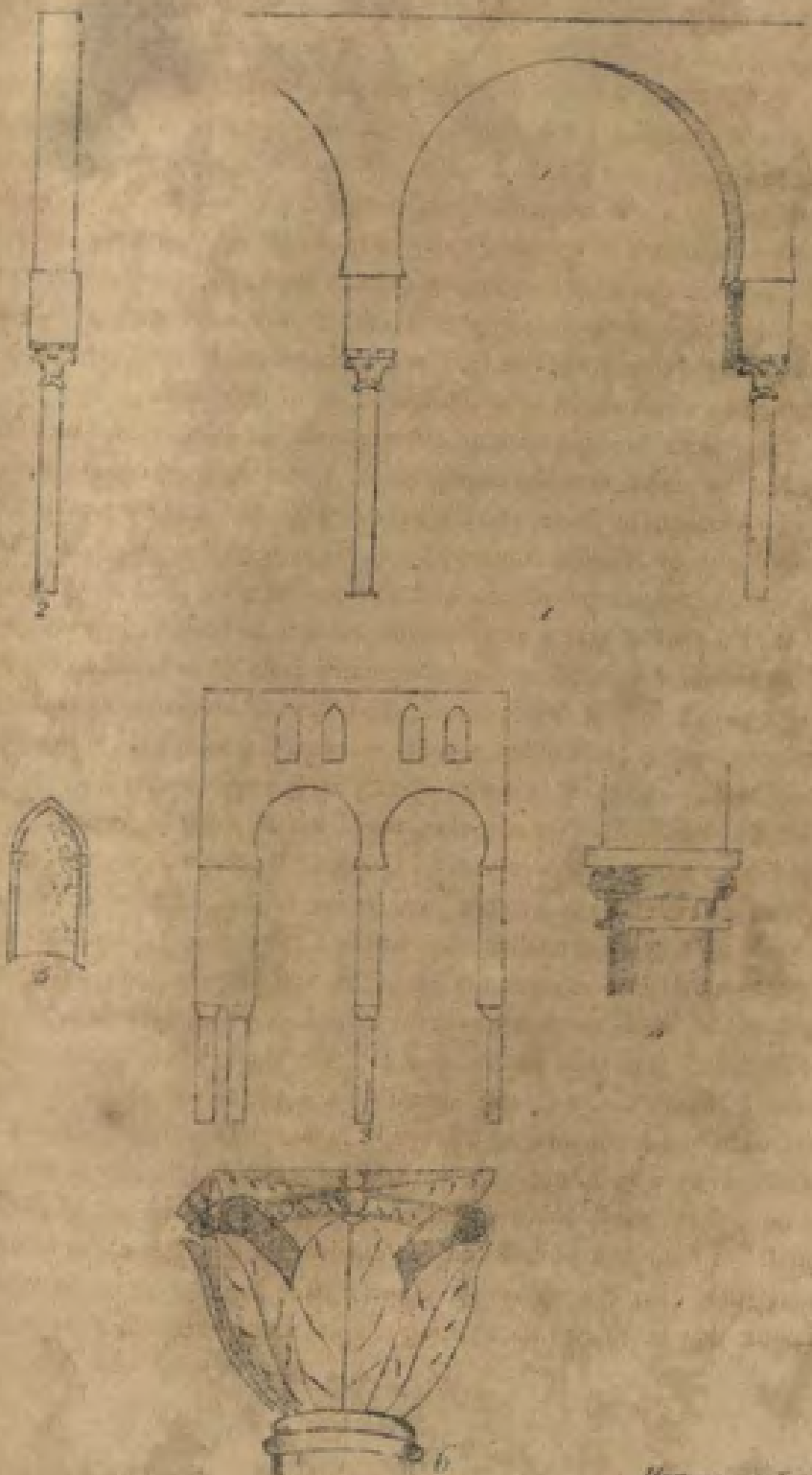
MOSQUE OF AMRU.

Old Cairo contains the first building, which was erected, in any country, by the disciples of Mahomed for the general duties of their faith. It was built under directions of Amru, the son of Nasi, in the year twenty-one of the Hejira, immediately after his conquest of Egypt in the Khalifat of Omar. In it the armed converts of the Arabian reformation were to be assembled, to hear the sermons of their chief against the prevailing idolatry, and to receive the commands of the successors of their apostle for the prosecution of divine vengeance upon idolatrous and schismatic Christendom. To accommodate preachers was the chief object of the building; but the convenience of worshippers as well as of hearers was to be considered. The mosque erected for these purposes is a large quadrangle, surrounded on all sides externally by a plain wall, and internally by a colonnade of many rows of pillars, which being roofed over affords protection from the heat of the sun; the whole of the enclosed quadrangle being a large open court. In the centre of the court is a fountain, by which the worshippers are made secure of a sufficient supply of water, which the apostle had determined to be all but indispensable for orthodox worship. In the eastern wall is an arched recess, which is the *mehrab*, towards which the worship-

pers direct themselves. The colonnade on this side contains many more rows of pillars than on the other sides of the quadrangle; so that a much larger space is there roofed over: for here on account of the *mehrab*, the Mahomedans offer their devotions; and the pulpit being near the *mehrab*, it is here also that they assemble to hear preaching. The *mehrab* is essential to a Mahomedan place of worship; for Mahomedans not assembling for congregational worship as Jews and Christians, but each individual offering himself at the stated times of appointed prayers by and through himself, it becomes necessary to preserve unity of spirit, among those who pray, by directing their thoughts towards one point in the building; which, being towards Mekka, may continually present to their minds the one apostle whose commands they obey, the one God whom they worship, and the reform of corruptions which ought to be the one object of their zeal.

These parts, viz. the open quadrangle with enclosing colonnades deepened on the Mekka side, the central fountain, and the *mehrab*, are common to every mosque in Cairo, and I believe to every mosque elsewhere, which is originally of *Muslim* construction. They are all necessary results of the peculiarities of the religion, and the general plan of Amru's mosque must be that of all others until mosques cease to be built. But the details of the architecture in this edifice differ much from those in other mosques.

The shafts of the pillars are all round, some of alabaster, and others of various stone. A black pillar, near the *mehrab*, is said to have been brought from Mekka, and there is shewn upon it an impression said to be of Mahomed's hand. Be this as it may, the pillars in general are evidently the spoil from more ancient edifices of Greek or Roman architecture: for put upon the shafts in a most rude manner are capitals of various kinds, the greater number being modifications of the Corinthian. These capitals are for the most part exceedingly beautiful, and indicate their having been wrought by hands much more skilful than those which have so barbarously cemented them to their present shafts. The shafts are in general without bases. Some shafts are supported by a single square plinth; and some short shafts are supported by very tall bases. The Mekka pillar is surmounted by a sculpture (fig. 4,) which is immediately recognised as an antique base; nor is this a singular instance of a base misplaced for a capital. In short, a walk round the quadrangle is sufficient to cause full conviction, that the architect required for his roof supports of equal height, that he robbed the existing temples and palaces for materials, that



Hasquin's Lith. Bdg.

he spoiled many capitals in pulling down the works of better architects, so that he was obliged to make some of the bases do for capitals, and thus was obliged to make his average height a capital and a shaft, that some of his pillars were broken, and becoming too short he then put a plinth under them, and that when he had only a portion of a pillar he was necessitated to build up several antique bases to make a sufficiently high base in the new structure.

In order to give some idea of the beauty of the misused sculptures, and to explain the internal evidence that the architect of the mosque could not have been the deviser, or competent in any degree to understand the value of his materials, I have made a sketch of one of the capitals (fig. 6).

Whenever a single pillar is not strong enough to support the masonry raised above it, two are placed very close to one another. This occurs at the entrance, where the pillars are sufficiently apart to allow a thin man to pass between them. Another instance is at the north-east corner of the quadrangle, at the entrance of a small chamber, which is said to have contained the tomb of a son of Amru.

Each capital is surmounted with a plinth of brick.

These brick plinths support a mass of brick, whose horizontal section is a square, and whose vertical section is nearly a double square; and as this mass must be hereafter referred to, I shall call it the stilt.*

The supercolumns support horse-shoe arches, which are longitudinal, or parallel to the walls of the quadrangle. A row of columns, therefore, with their arches form an isolated range; which supporting the roof is quite unconnected to and unstrengthened by the next row, or by the external wall, just as the pier walls of a church without a roof; and as such a row of columns, with their arches, will require often to be mentioned, I shall speak of them hereafter as pier walls. All the arches are alike, and rest upon the stilts; whose breadth is greater than that of the arch walls, but less than the interval between the extremities of two adjacent horse-shoe arches.

The stilts are not always of the dimensions above described: for instance, on the north side of the tomb of the son of Omar, the pillars being unusually short, and the span of the horse-shoe arches unusually small, it became necessary to gain the required height by lengthening the stilts, which here are longer than the pillars.

* I am indebted for this term to Mr. Clarke.

The arches support a flat roof of wood.

There are two *mehrabs*. They are both arched recesses in the wall, and the arches are pointed. The masonry is very rude, being of small pieces of marble put together without any order. Each of Amru's companions is said to have placed one piece with his own hand.

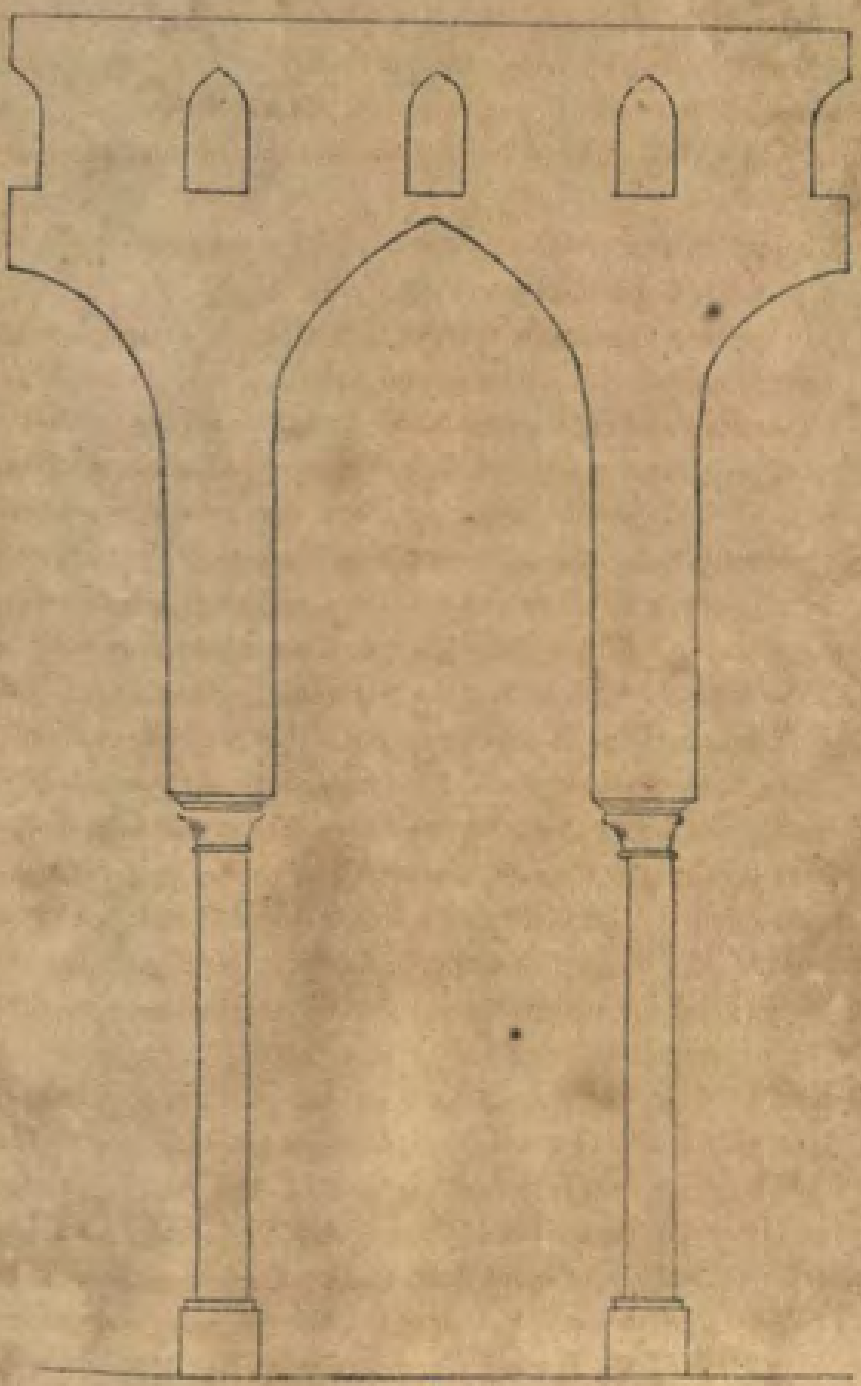
These are not the only instances in this mosque of the pointed arch. Over the two arches which are on the northern side of the tomb of Amru's son, there are four small openings with pointed arches.

The external wall is quite plain, and without any openings besides the doorways.

The principal entrance is to the west. The minaret at this doorway is covered with a rather acute conical cap.

The most striking appearances in this mosque are explained by the history of the conquest. A wild army of Arabian robbers conquered and plundered a wealthy and civilized country; and, incapable of appreciating the beauty of structures existing before them, applied their materials to any urgent use. Their chief requiring a building, in which his soldiers might conveniently assemble, it became necessary to protect them from the sun; it was proper to cover and roof in a sufficient space round and about the enclosure. Pillars from the neighbouring edifices were taken to support the simplest form of roof—a flat roof. But the pillars were not high enough; and the semi-circular arch was that which was almost the only arch then in use: as this would have raised the roof considerably but not sufficiently, the horse-shoe arch was therefore invented, as giving a much greater height with the same span. The figure is ugly for the purpose, but probably the dissimilarity of it to the round Roman arch recommended it to the reforming spirit of the barbarians. Still sufficient height was not gained; and the monstrous stilts were inserted between the columns and the spring of the arches.

This mosque has ever since been regarded as a most sacred edifice and has been continually repaired. Mouslema bin Mokhad extended it eastward, and built the four minarets, Hejira 21. Abd el Aziz enlarged it eastward in Hijira 79. The Khalif Walid (who is celebrated as a builder and converted the church of Saint John at Damascus into the well known mosque) roofed it. A new pulpit, four gates, the treasury, and a fifth gate were added in Hejira 92. It was injured by fire in Hej. 275, but restored by Kamourieh, who added the present fountain and a portico. But I am



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Mosque of Ahmed I.

10.

fully persuaded that none of these repairs and additions have affected the architectural character of the building as originally designed. Now, indeed, by order of the present pasha, it is undergoing repairs which are entirely revolutionizing it.

The general plan of a mosque, the horse-shoe arch, and the stilts originated then in a desire to erect, at the least expense, the most convenient meeting-house for the Arab army of Amru. He was probably his own architect, and history would not lead us to expect, from the destroyer of the Alexandrian library, much elegance or grandeur of design.

Mosque of Ahmed.

A mosque was erected by Ahmed bin Toulon, who is also called Kamouriah, about Hejira 261, in a style entirely different from that of Amru.

The large quadrangle with its covered colonnades around is essential to a mosque. And in Egypt, where there is little or no rain, it would be a waste both of skill and expense to construct any but flat roofs. The arch also is universally used for the support of the beams, so that pier walls are essential. So simple a structure admits of little variety but in the details of the pier walls. In Ahmed's mosque the arches are not supported by columns, but by cubical masses of brick work. The height of the mass is to its longitudinal breadth in the proportion of three to two, and the transverse breadth is also great. I mean by longitudinal breadth the breadth in the direction of the pier walls; and by transverse breadth, that at right angles to the same. These massive piers are plastered perfectly plain except at the edges, where they are slightly relieved by pilasters. These pilasters have no bases; but they have capitals of foliage which is quite flat, being worked in plaster, and hence lose the object of capitals for want of depth of shadow. (See fig. 10).

The plaster is very inferior, and it must not be supposed to convey any of the effect of the beautiful chunam work of India.

These piers support pointed horse-shoe arches, whose height equal that of the pier. A broad border of flat foliage, or chainwork in plaster, follows the arch, and is continued across the pier from the spring of one arch to the spring of the adjacent arch. The vertex of the border reaches nearly the top of the pier wall. The great breadth of the pier causes a vast space between the arches, which would have had a very naked ap-

pearance notwithstanding the border, had not the architect filled it up with a lancet window, in the centre, and circular openings, one on each side of the window.

The front pier wall is surmounted by a battlement, the design of which will be best understood by the figure.

The central fountain is enclosed in a square building surmounted by a cupola. The upper part of the square building is formed into two octagons, in order to destroy the abruptness which would be caused by the immediate transition from a square to a circular shape.

We have an historical account for the eccentricity and faults of this mosque. The rulers of Egypt, under the Bagdad Khalifs, had in Ahmed's time become powerful and wealthy; as a consequence of wealth, they wished to leave behind them monuments which might perpetuate their memories. Mahomedan architecture presented nothing worthy of being imitated, nothing capable of improvement; still a strong prejudice against every thing of Christian or of Pagan use was an insuperable bar against adopting the style either of churches or of temples. Ahmed had long been perplexed with these difficulties, when at length a Christian prisoner offered the plan of a mosque, which was acknowledged by the Mahomedan court to be equally beautiful and free from religious objection.

As seen in the building, which is even now little injured by time, the characteristics, which may have been adopted from Amru's mosque are,

1st the general plan.
2nd the horse-shoe arch.
3rd the small pointed arch.

And the novelties, which the architect introduced, are,

1st the pointed horse-shoe arch.
2nd the substitution of piers for pillars.
3rd the foliage and chainwork in plaster.
4th the octagonal ornaments in the battlements.
5th the round ornaments in the wall.
6th the transition from square to round by means of the octagon.

Tombs.

Mahomedan tombs are another class of religious buildings which, being more numerous and not being so liable to repairs or alterations in ages subsequent to their erection, promise a larger amount of historical information. There is generally a tomb, or more than one tomb, erected at the

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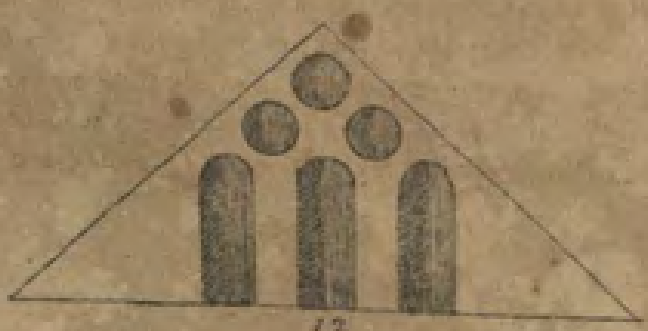

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Hampton's Lith.
B'bay

northeast and southeast angles of a mosque; but the tombs, to which reference is now made, are not subordinate parts of a mosque. They are independent of other uses than the service of the dead; a small space only being left, on the east side, for worship, and which I suppose is only used for offering up prayers for the dead. The ground plan of Kelaoun's tomb will suffice to give an idea of all. In figure 23, D D D, are the three western doors; K is the *mehrab*; T is the coffin enclosed by rails, which are marked by the dotted lines; S S S S are square piers; P P P P round pillars which with the square piers support the roof. These tombs are always entirely roofed over.

In the mosques and tombs, which I examined, I found no architectural characters, which were not essentially the same as those above described; but the principles, which originated in the mosques of Amru and Ahmed, developed and underwent great modifications in subsequent years. To understand these it will be convenient to consider in order:—

1 Arches.
2 Piers and pillars, pilasters and capitals.
3 Pediments.
4 Corbel supports.
5 Roofs, vaulting and cupolas.
6 Windows.
7 Geometrical ornaments.

The Arch.

The pointed arch is to be seen in buildings of every date. Whether the pointed openings in Amru's mosque are a part of the original structure, may be doubted; but the pointed *mehrab* certainly is, for it could not have been introduced into the wall of which it forms the lowest part. Repairs and additions have been recorded above; but among these the only one which could have affected the *mehrab* is the extension eastward by Moslema bin Mokhad. If the *mehrab* was then built, it is of no consequence to the present argument, for this alteration is stated to have been in the same year as the erection of the mosque. It is likely enough, however, that by this extension eastward is meant an enlargement of the eastern colonnade, which is more likely to have been enlarged inwardly than outwardly, as the increase in the number of pier walls inwardly would have been effected without any disturbance of the previously existing walls; and if

this supposition is correct, Moslems did not build the outer wall in which the *mehrab* is. I do not remember a round arched *mehrab* in any one of the tombs; and as there is necessarily a *mehrab* in every tomb, and as it is very improbable that any alteration should ever be made in a tomb, or indeed any repair beyond what is absolutely necessary to preserve it, this would prove that the pointed arch is co-eval with tombs. But on a hill not far from the mosque of Amru is a tomb, (said to contain the remains of Abu Saad el Ghazi) in which the architecture is so similar to that of the mosque, that it seems impossible to deny it an equally early date. It is built with the same rudeness, and with like materials from more antique buildings. Its minaret is similar; its arches are round horse-shoe; certain piers also, which are substituted for columns, afford strong evidence of antiquity, as will be explained under the proper head. None of the architectural characters, which are known to be of late date, are to be seen; and this tomb has a pointed *mehrab*. Some Arabic scholar may determine the age of Abu Saad el Ghazi, but the above marks will hardly allow a doubt as to the date about which his tomb was erected. Ahmed bin Toulon uses the pointed arch very freely; and we henceforth find it commonly used in all ages.

The origin of the horse-shoe arch has been already accounted for; and the general principle upon which Ahmed's mosque was designed, explains why the pointed and horse-shoe character were there combined. But the horse-shoe arch is so very ungraceful, that subsequent architects dispensed with it; for they observed that the use of the horse-shoe, in increasing the ratio of the height to the span, is equally well accomplished by the pointed arch, which form Ahmed's mosque had now made fashionable. Hence in the mosque of Muiz (whom I suppose to be the first Fatamite Khalif who established the seat of his government at Cairo), the pier arches are pointed but not horse-shoe. The arch is a blunt arch, having its centres somewhere about the quartering of the span. But to increase the height the supercolumns are more lengthened than in the mosque of Amru, and their sides made continuous with the curves of the arch. The effect is good; and the pier wall of Muiz (fig. 7) is in its design a carrying out and improvement upon the pier walls both of Kamourieh (fig. 9) and that of Amru (fig. 1).

The arches in other and later buildings are both pointed and round, without any decided preponderance of either form.

The pointed arch is either equilateral or obtuse. I remember no instance of an acute arch.

Pl XVIII.

Hamptons Lith. - Bhay

Piers, Pillars, Pilasters and Capitals.

For supports the Greeks, Romans, and Egyptians, had used only columns, and almost always round columns. Ahmed, in his zeal against ancient architecture, invented the square pier; decorated as it was with pilasters however it did not please; and it has been seldom adopted in subsequent buildings. Muiz imitated Amru, and borrowed round columns and capitals from the temples and palaces of unbelievers. He improved however upon his example, by raising all the shafts upon neat and uniform bases. Each base consists of a square plinth, a few inches thick, supported by a cube, which may be two feet high; no mouldings enrich them or round off their edges; but they have the good quality of neatness which is sadly wanting in Amru's mosque.

In the mosques of the Khalif Hakim and of Sultan Bakok, Ahmed's principle has been observed; but a new contrivance has been made to avoid the round pillars and capitals of other faiths. Ahmed's architect felt the necessity of rounding off the vertical angles, which he effected by means of pilasters, and was certainly guilty of offence against the grand principle. Hakim and Bakok avoided even this by simply cutting off the angles of the square piers, so as to form an octagonal pier, and escaped the necessity both of capital and of base, by rounding off the upper and lower ends of the octagon into hollows, as shewn in figure 14. Although so much more plain than Ahmed's pier, yet this has much the better effect; for its height and diameter are brought much nearer to classical proportion.

We find the same struggle to avoid infidel models in pillars through every age. Kelaoun has used, for the main support of his cupola, large square piers ornamented with horizontal mouldings, mosaic, and various colors. At the edges they are ornamented with round pilasters, which have capitals and bases of the most fantastic device, gaily painted with red, green, and yellow. Pillars and pilasters of this strange character serve various purposes in this tomb; their beauty may be appreciated by figures 17, 18, and 19.

Kelaoun's cupola is also partly supported by four round pillars, which are surmounted by Corinthian capitals. These pillars are tall, but not out of proportion to their diameter, which I found to be 3 feet 3 inches.

Kelaoun's son Ashraf seems to have been possessed with the same

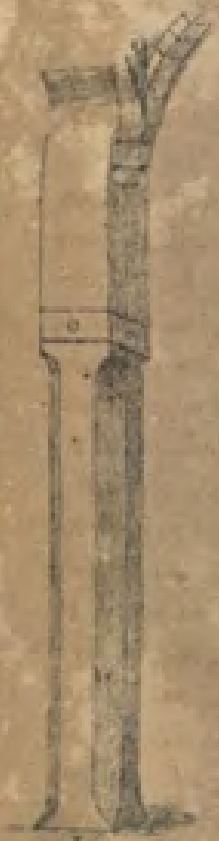
spirit of incongruity. His tomb is fantastically adorned with mosaic, and the shafts (which are round) are supported by inverted Corinthian capitals as bases.

Abu Saad's tomb contains pillars and capitals of another fashion. The round pilaster (fig. 16) is on one side of a doorway leading into a tomb, the arch of which is shewn in fig. 22. A round shaft is here required to support a square. To form a pleasing transition from the round to the square is one of the great problems of architecture. Greek temples are essentially composed of round pillars upon which square edged beams rest; and the classic architects perfected their successive devices, to accomplish this problem, by the Corinthian capital, in which the eye, losing itself among the foliage, is gradually carried away from vertical to horizontal lines, and from the round to the square. The Mahomedan solution of the same problem will be better understood by reference to figure 16 than by description. It will be observed that the change is effected by a succession of bevelments, so that the intermediate figure, which the circle changes to a square, is a re-entrant polygon of sixteen sides. Figure 15 represents an octagonal pillar which supports the roof, of which the upper part may be considered as a supercolumn. The transition from the octagon to the square is here effected by similar bevelments as that from the circle to the square; and forms an incipient capital, not quite so complete as on the pilaster above described.

Thus an entirely new and Mahomedan capital was invented. But it seems to have been little imitated, although it appears to have given the idea of important peculiarities in Cairo architecture.

PEDIMENTS.

Over the fountain, in the centre of Ahmed's mosque, is a square building surmounted by a cupola (fig. 11). In such a case there is the same necessity for a transition as in a pillar; and the same system of bevelment, or cutting off angles, was adopted as in the capitals of Abu Saad. In Ahmed's mosque the angle is twice cut off, so that the whole building is a square prism, upon which is an octagonal prism, over which is a second octagonal prism, and above which is the round cupola. Thus in this instance, the angle of the square is cut off in two steps. In later buildings, as in the tomb of Moiz, the number of steps are increased, and in those of yet later date, the number of steps are so multiplied that at a distance they



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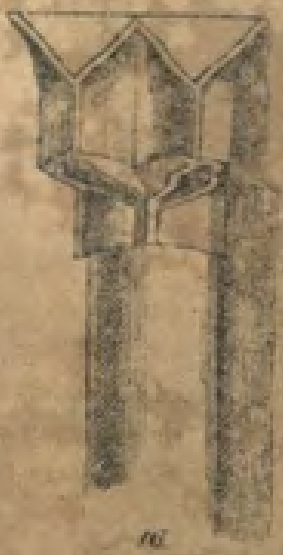

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Hampton Lith. Ebury.

are not perceptible, and the upper part of the square face appears as a pediment. In the modern tombs they become a real pediment, as in that of Sultan el Ghori, fig. 12. Sultan Mahomed has ornamented the angles of his tomb by rounding off the steps into horizontal mouldings.—The pediment is sometimes complete (fig. 12), and sometimes truncated (fig. 13).

Corbels and Minarets.

This principle of bevelment was extended to every case where transition from a horizontal plan of straight lines to another horizontal plan of curved lines, was required. Thus the interior of tombs required the same transition as the exterior, and a system of bevelments, exactly the same as those of Abu Saad's pillars, is generally used. The rows of re-entering prisms are of course increased, and each row is increased in the number of its cells, from one at the base, in arithmetical progression, the common difference being one. So that a pleasing triangular assemblage of cells is formed. A fine example may be seen in the tomb of Sultan Bibars, where the cells are very large. In other buildings, as in the tomb of Bakok, the number of cells is increased.

These bevelled cells were further used, wherever an overhanging balcony or room was required. Thus they served the purposes of corbels and corbel tables, and may be called cellular corbels.

Cellular corbel tables are used for the support of the balconies which surround the minarets; the balconies being always round, and the minarets themselves almost always octagonal.

Roofs, Vaulting, and Cupolas.

The roofs of all the mosques, excepting two, which I examined, are flat; but the tombs are always covered in with a cupola. The cupola over Ahmed's fountain is hemispherical (fig. 11); Mahomed's cupola (fig. 13) is *ogive*, and raised on a cylinder. Ahmed's cupola is quite plain. *Zigzag* ornaments the exterior of the cupola of Muiz. Sultan Mahomed (fig. 13) has used the zigzag and chevron. Sultan Ashraf has embossed his dome with flowers. Sultan Bakok uses the zigzag; and again Sultan Aswad's cupola is quite plain. No universal law has therefore been observed; but in general the more ancient cupolas are hemispherical and plain, and the more modern are elevated and ornamented

I did not notice any large cupolas of the horse-shoe shape, although minarets are usually surmounted by them. But these little cupolas are rather ornamental finishes to the whole than coverings.

One of the deviations from flat roofs is found in the aisles and temple of Sultan Bakok, built about A. D. 1382. Here the pier walls are connected by transverse arches, and every square of four pillars supports between them an hemispherical cupola: so that the whole roof of the colonnades is formed of a multitude of little equal cupolas.

One other deviation is found in the mosque of Sultan Hassan, about A. D. 1310. This mosque is entirely different from every other, and is the only aberration, (which I observed,) from the type of Amru's mosque.* The ground plan is a Greek cross. The central square is open to the sky, but the four arms are roofed by a simple pointed vault.

The minarets of Abu Saad's tomb and of Amru's mosque are covered by simple conical caps. The simplicity of this form would refer it to the earliest stage of architecture, and is another evidence of the antiquity of Abu Sadd's tomb.

Windows.

In the tomb of Amru's mosque are small pointed openings, and also in the upper part of the pier walls of Moiz. These are without mouldings.

Between each pier arch, Ahmed's architect has placed a lancet window; and has made a first attempt at mouldings, by introducing, at each side, a pilaster similar to those at the edges of the pier.

No further approach to the idea of mouldings has been made in subsequent years. The window (fig. 21) in the tomb of Sultan Bibars, has also pilasters on the sides; and the window (fig. 20) in the upper part of Kelsoun's tomb, has a rich but flat border round it: but in general the edges of windows are, like those of arches, perfectly plain.

The opening of the whole window is generally filled up by a wall, thinner than the rest of the building, and this wall is pierced with smaller openings. There is an early example of this in the fountain of Ahmed, where the openings are angular, and nearly fill up the whole window; so that the parts of the wall remaining are almost nothing more than the simplest form of geometrical tracery. But in the tomb of Sultan Bibars

* It is remarkable that this mosque, which is quite abnormal, should be shewn to strangers as a specimen of such buildings.

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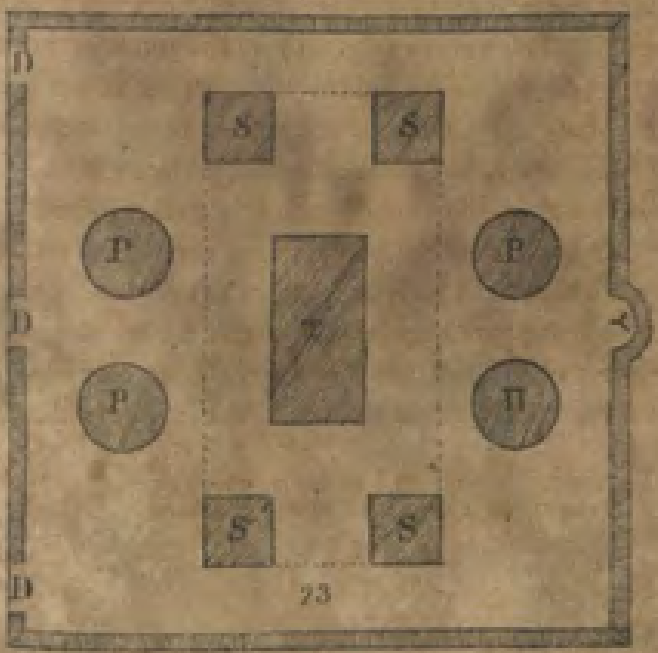

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Hampton's Lith. B'bay.

(fig. 21), this window wall occupies nearly the whole space, and there are only two small openings, one hexagonal and one circular. The window (fig. 20) of Keloun's tomb is on the contrary much opened; the upper part only being walled, and the lower part divided by a small pillar which supports the wall above, and made very light by one circular, and two horse-shoe, openings.

The windows consist of either round headed, or blunt pointed arches; and I did not observe any acute pointed ones.

Pediments require a different style of window. In complete pediments, three narrow round headed openings, of equal height, pierce the lower part of the pediment, and the remaining upper space is occupied by three round openings, so that the centres of all six circles are in a triangle similar to the pediment.

In truncated pediments (fig. 13), the same combination is preserved, apparently only for the sake of the fashion introduced by the complete pediment; since, in order to preserve the fashion, it was necessary to introduce the panelling which we see in Mahomed's pediment.

Round windows admit light through the cylindrical base of Sultan Bibars's cupola.

Geometric Ornaments.

The Mahomedans of Cairo have admitted flowers and foliage among their architectural ornaments; while there was a tendency to discard even these, and to confine all decoration to combinations of the straight line and circle.

Amru's mosque is entirely without ornament; but this must be attributed more to rudeness than to principle; for the former cause would even forbid the use of ancient capitals. Abu Saad's tomb has much ornament and all geometrical; both *zigzag* and chain work (fig. 22) occur over the doorways, as also combinations of semicircles and straight lines. Zigzag and chain work are most common ornaments of every age and are every where seen. Ahmed's mosque is profusely enriched with geometrical combinations, all of which bear some relation to the octagon.

The lattice work, with which the openings of the windows are generally closed, is always geometrical; and for the most part combinations of straight lines only.

The innermost pier wall is generally surmounted by a battlement, (figs.

8 and 9), which also has afforded opportunities for the exercise of geometrical skill.

Character and Origin of Cairo Architecture.

Thus the manner of Mahomedan worship, the climate of Egypt, the desire of princes to perpetuate their memories after death, and the spirit of antagonism to Christianity and paganism, gradually produced an original and peculiar style of architecture. It is recognized by cupolas, minarets, geometric ornaments, the horse-shoe and pointed arch, stilts, windows in triplets, and windows of geometric openings in a plain wall, square massive piers, pediments, and corbels of bevelled cells. The general plan and minarets must be attributed solely to the necessities of the Mahomedan form of worship. Horse-shoe arches and supercolumns owe their origin to the climate, which required a high roof to preserve a moderate temperature under the colonnades. Square massive piers, fantastic capitals and bases, the two styles of windows, and all that originated from the principle of bevelment, whether in pediments or in corbels, must be attributed to the spirit of antagonism against other faiths. In all these points the Cairo style is original, and in some peculiar; but it borrowed from others the cupola, the pointed arch, and most if not all its geometric ornaments.

Constantinople had set the fashion to the Christian temples, which were built, in every part of the Roman Empire, under Constantine and his successors, (1) in consequence of the nearly total annihilation of previously existing churches during the Diocletian persecution (2). The ground plan of these churches was a Greek cross, the centre of which was a cupola supported upon four arches. It is to be observed that the cupola is used by the Mahomedans over tombs only, until the fourteenth century, when Bakok employed it to vault his mosque. They may have been mystical enough to consider that the churches of Christians were but the mansions of the dead: or more probably the wish of leaving their bodies under the richest edifices which their age could produce, overcame the spirit of hatred to Christian form, and caused the Mahomedan Princes to yield to the judgment of infidel architects: since it is known that Christian architects were employed in Mahomedan countries, and even requested by Mahomedan Princes from the Greek Emperors.

(1) Hope's architecture, p. 121.

(2) Lactantius de morte persecutorum.

The *zigzag ornament* is as old as 456 A. U. C, and is a corruption of the Greek dentile (1). A careful enquiry into these geometric ornaments will probably trace most of those used in Cairo to a more ancient period; but their general use is certainly a striking feature and peculiarity of Mahomedan architecture.

It has been shewn that the pointed arch is coeval with Cairo architecture, but that it did not come into general use until Ahmed bin Toulon's time, after which it occurs every where. Hope says, "in buildings of the earlier Byzantine, nay still more antique Roman style, the pointed arch had already appeared." If this be correct, it was without doubt borrowed from Constantinople and the Christian churches, as well as the cupola. In the earliest buildings we have found the arch of the *mehrab* to be the only pointed arch. There is certainly no architectural reason for its use in this position; but the considerations, that the Mahomedans had ever in their thoughts the hated structure of the Christian temple, and that their leaders ever laboured to increase the feeling that there could be no peace between the two religions, suggested a reason for its adoption as the arch of the *mehrab*. All the early churches, both of the east and of most countries in the west, terminated with a round *apse* having a semi-domical roof; (I use the nomenclature of Dr. Whewell proposed in his notes on the Architecture of German churches,) and in the centre of this was the altar towards which the eyes of all the congregation were directed; the domical roofed *apse* therefore became the *mehrab* of the Christian. Now the Mahomedan *mehrab* is an *apse* in miniature, but pointed; and this pointing may have been adopted to contrast with the round arch of the Christian *apse*, and to keep up in the minds of the worshippers the contrast between the two faiths. The history related above of the foundation of Ahmed's mosque leaves no doubt that this spirit caused its universal use in that edifice; for at that time and for centuries after, the round arch was almost exclusively used both in Eastern and Western Christendom. Ahmed's mosque must have been designed in the latter half of the ninth century, and there is not an instance of the pointed arch in Western Europe before the eleventh. The examples quoted by Hope prove its occurrence, only as a rarity, in the Byzantine churches; whereas from Ahmed's time it becomes a characteristic of Mahomedan structures.

(1) Hope, p. 75.

Influence of Mahomedan on Christian Architecture.

While the Mahomedans were thus producing an original style of Architecture, Christians were enriching the Byzantine style; which in Italy, Germany, England, and France, was assuming local forms and introducing new styles, named by different authors, Romanesque, Saxon, Norman, &c. &c. These were definitely forming into a new order, which was distinguished by the leading principles of the Gothic, when the crusades brought the nations, who were most actively engaged in improving their national forms, into contact with the East and with Egypt. Immediately after the first crusade, the pointed Gothic, in its earliest form suddenly and rapidly developed itself in France and England. English and French barons, (one nation at that time in every moral sense,) were the chief leaders of the early crusades; and in England and France the pointed Gothic first and chiefly flourished. Such coincidences afford a strong presumption that the active minded northerns did borrow the pointed style from the East. Upon this subject much has been already written, but internal evidence, derived from architectural peculiarities, will be much more convincing than external evidence derived from the probabilities of history; and to consider this we therefore now turn.

The pointed arch, in the earliest specimens of early Gothic,* through Germany, France and England, is obtuse and sometimes equilateral. The acute arch appears only in the later early Gothic. Now the acute arch is much more suited to the essential idea of Gothic, which is the predominance of vertical lines; and this is the essential idea both of the Romanesque, Gothic, and of the pointed Gothic; while there is no reason against the use of the acute arch where the obtuse has been actually employed; but the former could have effected all the purpose of the latter. If the pointed arch was borrowed from Cairo, this difficulty is explained; for there it is always obtuse or equilateral, never acute.

The windows of the earliest pointed and even of the lingering Romanesque are frequently in triplets, with round windows often above them. This arrangement has not been traced up to any cause in Europe; but in Cairo,

* The Pointed Gothic is now always distinguished in England into Early English, Decorated, and Perpendicular. The Early English is the development, the Decorated is the perfection, and the Perpendicular the decay of the style. The development of the style in all countries may be called Early Gothic.

where it occurs of an earlier date, a sufficient cause has been found in the forms and position of the pediment.

The window of two lights, with a circular opening above, (fig. 20 Kelaoun's tomb,) is even more common than the triplet in early English. In the Gothic the round horse-shoe becomes obtuse pointed, and the thin wall becomes tracery. Now Gothic tracery is perfect when all the lines flow easily into one another, and imperfect in proportion to the neglect of this principle. But the combination of two obtuse arches with a circle is made to accomplish this with much difficulty; and notwithstanding, this is the most common window in use, during the predominance of early English—I have seen only one instance where the easy flow is effected in this construction, viz. in the triforium of the nave of Lichfield cathedral. It seems inconceivable that the Gothic architects should have invented a window so unsuited to their principles; but it is comprehensible that it should have become fashionable after having been once adopted from others.

In early Gothic, and in the perfect Gothic, we observe a fondness for geometric ornament, which seems hardly consistent with the tendencies then existing in the Christian church, but which is easily accounted for on the supposition that her architects were gathering ideas from the opposing faith. When the crusades had ceased, and the perpendicular and *flamboyant* succeeded the perfect Gothic, this tendency to geometrical form became weaker, and imagery was profusely used.

The architecture of Cairo may have influenced that of Christendom, through another channel besides the crusades. The Saracenic kingdoms of Italy and Spain may have introduced the new principles; and this may explain the few (if genuine,) instances which are quoted, of early Gothic anterior to the crusades.

But the Gothic Architects were far from being mere copyists. They adopted the pointed arch, and made it subservient to the great principle of verticality which had existed previously in the Romanesque. They also applied it to vaulting: and this reacting again upon the arch produced its more beautiful forms. Geometrical ornaments were increased in number and new combinations formed. Windows in triplets were coalesced into beautiful windows with flowing tracery, filled up with pointed glass in the place of lattice work and void spaces. Mouldings decorated the sides of windows and doors, and combined with the lines of shafts and panelling,

which pointed up beyond the concealed roof. The flat floored border of Ahmed's arch was moulded into rolls, whose deep shadows fixed the eye, and aided to carry it upward from the ground. Piers were adopted to support the mass of masonry which did not exist above the Mahomedan pier, and decorated with clusters of thin shafts and mouldings, they kept up the effect by destroying the tendency of every necessary horizontal line to depress the eye. Nor did they adopt the deformities of the unbeliever's creation; the bevelled capital and the unmeaning capitals of Kelaoun were looked upon only to be rejected; and corbels, more beautiful than those of Cairo, were invented. But they did not reject the Romanesque capital, and modified it into their own uses, by making it a mere knob, by which the eye might be assisted up the shafts. The cupola, on the other hand, was rejected for a more susceptible form of vaulting; and fan tracery was developed out of a system, which the adoption of the cupola would have prohibited for ever.

But in place of the cupola, as a covering for Gothic towers, the spire gradually rose from the same conical caps as we have seen on the minarets of Amru and Abu Saad. The round towers of Ireland are covered in with conical caps, the idea of which seems to have been taken from the stone roofs, which, at the period of the erection of these towers, were framed over the churches. These roofs are formed by horizontal layers of stone, the ends of which are cut off externally at an angle of sixty, so as to form this high pitch for a gable ended roof. * This principle to cover in a round building necessarily produced a conical cap. The blunt spires of the early English are little else but these conical caps set upon a larger base. But as the style improved, the spires ascended with their supporting pinnacles; and crockets and adornments soon became the greatest ornament of the Christian landscape. So much could western energy develope out of so simple a structure as the conical cap; but the Mahomedan extracted nothing from his conical caps, but soon discarded them altogether for the fashionable cupolas.

* St Doulach's near Dublin; St Kevins Kitchen, Glendaloch. It is strange that antiquaries should not have seen that the round towers must be belfries. Bells seem to have been first cast in our western countries; and they were no doubt most necessary in the missionary establishments of Ireland. The architecture of the round towers and of the seven churches at Glendaloch is that which is called Saxon by Rickman, and referred by him to the time of our Saxon Kings.

As I do not refer the idea of the spire to the minarets of Cairo, so neither do I consider the gabel ends and pediments of the Romanesque churches of Germany to have been derived from the pediments of Egypt; because they are easily traced through Italian churches to the civil edifices of Rome, and thence to the Grecian pediment.

Mahomedan architecture, then, is wholly distinct from both the Romanesque and the pointed Gothic. It borrowed from the one, and the other borrowed from it, while the principles of all three styles are essentially distinct. On this subjet error is committed by those writers who have taken extreme views; some considering the Mahomedan to have been the source of all middle age architecture, and others giving strong reasons for believing that the reverse has been the fact.

The Mahomedan then invented some novelties which the Christian deemed worthy of adoption, but which under his hand gradually improved into a perfection of which the originals seem hardly capable. He made other inventions which were too ugly to be copied, while the latter was compelled himself to make copies, which he was unable to improve, at a time when Christian architecture was making a progress which has astonished all students of history and science.

From the time of Ahmed to the reign of Bakok, Mahomedan architecture had remained stationary. During five centuries, from the first effort to produce something original, nothing of any real value had been produced; while in England, from the reign of Stephen, when the pointed style commenced, to the time of Sultan Bakok, (that is during two centuries and a half), our countrymen wrought out the varied forms of Gothic, which excite the wonder of our age, and afford subject of untiring contemplation to the student.

Such slowness and incapacity may be attributed partly to want of imagination, in which the Arabs appear to be particularly defective: for Arab science is now pretty well known to owe every thing either to Greece or India. Arab history never passed the limits of mere chronicles, and the bulk of their literature begins and ends with Greek authors; while Arab poetry is said to be all of one model.

Egypt has perhaps been more favored than any other Mahomedan country in the enjoyment of peace, which is the nurse of the fine arts. Yet the law, which permits the father to make any favorite son his heir, rendered the succession to the monarchy uncertain, and caused intestine com-

motions which were quite enough to distract the minds of all from the culture of the fine arts. Besides which, Syria being within the dominions of Egypt, her rulers were never allowed to be in peace, on account of the wars which they were compelled to maintain on this side, successively against the Greeks, the Crusaders, the Tartars and the Turks.

In Christendom, during the middle ages, the architects and founders of our temples were men who did not feel themselves isolated individuals in their work. The same motives which caused one to begin, would cause another to continue his work until it was completed. They could therefore lay out and commence magnificent schemes for edifices, which they themselves never expected to see raised far above the foundations. They were members of corporations; and the labor of one was not only the labor of that one man, but of the whole undying corporation. Mahomed destroyed the ancient cathedral and monastic corporations of Christendom, but substituted nothing in their place. The conduct of all Mahomedans hence assumes an individual and selfish aspect. The founder of a new town planned just such a mosque as he could expect to complete himself, and most princes were contented with building for themselves a tomb. Hence the unsubstantial character of the materials of Cairo buildings; for although the nummulitic limestone supplied ancient Egypt with an excellent stone; yet all the Mahomedan remains are of brick. An exception however must be made in favor of Salah-ed-Din's erections. The fortifications of Cairo attributed to him, and also the great aqueduct, is of nummulitic limestone; which evenhe however did not attempt to quarry but carried away from the Pyramids of Ghizeh.

Those travellers, who are able to pursue this subject in Egypt, or those who make similar enquiries in this country, will find M. Coste's work on the architecture of Cairo very useful. It is to be hoped that the Asiatic Society will emulate, in India, those Societies whose architectural researches have thrown so much light on European History.

Comparative Chronology of Cairo Architecture.

Christian Architecture.	A.D.	A.D.	Heg.	Mahommedan Architecture.	Egyptian History.
		640	20	Pointed arch, horse shoe round arch.	Egypt conquered by Amru, death of Amru.
		652	32		
		696	78	Abdal Aziz enlarges Amru's mosque.	
		710	92	. . . . .	Khalif Walid dies.
		874	261	About this time Kamarieh's mosque is built.	
		888	275	Pointed horse-shoe and Fleur, Geometrical ornaments. Kamarieh repairs Amru's mosque.	
		878	268	Zigzag ornament on the cupola.	Khalif Muiz establishes the seat of the Fatemite Government at Cairo.
Cathedral of Chartres, said to be pointed.		900	288	. . . . .	Khalif Hakim.
Jerusalem taken by Godfrey of Boulogne.	1099	1098	491	. . . . .	dies.
	1099	1166	562	. . . . .	Saladdin puts an end to the Fatemite Dynasty
St Cross built by Henry de Blois, an instance of pointed struggling with Romanesque Gothic.	1132				
		1263	662	. . . . .	Sultan Bibars dies
		1279	678	. . . . .	Almansour Kelaoun dies.
		1293	693	. . . . .	Al Ashraf dies.
		1356	757	. . . . .	Sultan Hassan.
		1381	784	. . . . .	Sultan Bakok.

Art. II.—*Geographical and Statistical Memorandum on Beluchistan.* By Major George Lemessurier, of the Bombay Army.

The province of Beluchistan, of which Kelat is the capital city, is situated between the 25th and 31st parallels of north latitude, and the 62nd and 67th of east longitude: being bounded, on the north, by the Lorah river, which forms the southern limits of Afghanistan; on the west, by the desert of Noshki, Chargye, Kharan, &c. which separate it from the Persian dominions; on the south, by the Indian ocean; and on the east, by the Hala range of mountains, which divides it from Sindh. This country so extensive is perhaps without a parallel, and certainly no portion of India can in any way be compared to it. In its physical features it approximates to Afghanistan, of which indeed it

may be called an integral portion, as well as a dependency; it is like it, a country of mountains, intersected by narrow valleys, and happily described as an extensive and varied system of mountain ranges upheaved through an enormous plain, variously covered with *boulders and shingle*, with here and there deposits of soil, in narrow strips along the lines of drainage. This last remark applies peculiarly to the eastern frontier of *Beluchistan*, but scarcely so much so to the western; where the mountain ranges gradually subside into plains, or rather run, in detached and isolated portions, far into the desert, which divides it from Persia. This part of the country becomes more level and open generally, and with few exceptions sandy. In the report on Afghanistan by Dr. Griffiths, (published in the Journal of the Asiatic Society of Bengal,) the author observes that the system of mountains, which form so remarkable a feature on the eastern boundary of Beluchistan, is referrible to the mountains of the *Koh-i-Sefed*; a name given to that portion of the western continuation of the great *Himalaya chain*, which, after forming the southern boundary of the valley of Jallalabad, extends thence, in a general line, southward along the right bank of the Indus, and includes the *Takhti-Suliman*, the ranges commonly called the *Hala*, or *Harbui mountains of Brahuistan*, (which stretch away south to the sea,) and all those to the east, south east, and south of Kabul, Ghizni, Kandahar, and Quetta. A system of mountains so continuous, passing into each other, by such numerous ramifications, may be best comprehended and described by noticing the remarkable fact of the entire extent being penetrated, *but by three routes** or passes, practicable for our wheeled carriages. It is true that many other passes occur, but they are not of a nature to admit of any particular stress being laid on them, as available means in a commercial point of view. The two passes however, leading from the neighbourhood of Derah Ismail Khan, and Derah Ghazi Khan, may possibly be considered as forming exceptions to this observation; but, as they are not generally looked upon as practicable routes for carts, they need no particular notice beyond the fact of both being travelled by merchants, trading between the upper and lower countries; while the direct route from Kelat to Sunmiani, which passes to the *westward* of the mountain ranges, can scarcely be included in the list, although it be considered one of three principal routes

* The Khaibar, the Bolan, and the Mulla Passes.

of Beluchistan, the two others being the Bolan and Mulla passes. Both of these are sufficiently well known as available for commercial purposes, and require not here any detailed description. It may be remarked generally that *all the passes*, penetrating the great mountain ranges, from the Khaibar to the sea coast, partake of the same character, and are ascended and descended by means of the river beds and water courses, which are generally dry, excepting during the season of floods, and afford indeed the only practicable routes of transit. One feature peculiar to these water-courses, and probably confined to this remarkable country, is their resemblance to gently inclined plains, covered by moderate sized boulders and shingle; differing however from the ordinary hill-ravine appearance, inasmuch as these water-courses are not impeded or choked up by fragments and masses, torn from their sides; and the absence of which renders such passes comparatively of easy access.

The Hindu Kush, Koh-i-Baba and Koh-i-Safed mountains in Afghanistan, are marked by a barrenness peculiar to themselves, and in carrying out a comparison between them and those of Beluchistan, it is to be observed that this characteristic feature occurs, in a remarkable degree, throughout the entire *Hala range*, and those numerous mountain ramifications from the south of Kelat, to the sea; where there barrenness may be considered almost absolute. The physical features however undergo no change; but continue closely to approximate, in their character, to the mountains of the Hindu Kush, which they resemble by having rocky scarped and inaccessible faces. Some of the offsets are composed of conglomerate, often exceedingly hard, and of friable mica slate, decomposed on the surface. The higher ranges chiefly consist of limestone.

Regarding the elevation of the Hindu Kush, and other ranges forming the western continuation of the great Himalaya chain, we find the highest accessible point viz. the "Pass of Erak, at Bamian," ascends 13,000 feet above the sea, while the higher inaccessible peaks and ranges attain an elevation of 15 to 18,000 feet. In tracing southwards the course of those ranges, running parallel to the right banks of the Indus, and connected with the great chain of the Indian Caucasus, this elevation is found to gradually diminish; and at Quetta the highest peaks, those of the Chiltan and Takkatu mountains, do not exceed respectively 10, 245 and 10,875 feet, while the elevation of the Shawl valley has

been determined at 5,242 feet above the sea. From this point to Kelat the country perceptibly ascends, the valley of Kelat being 790 higher than that of Shawl. Thence to the sea coast, a distance of nearly 300 miles, the country presents a gradually inclined plain, along the lines of drainage; the various ranges and their numerous ramifications are consequently subjected to the same depression, till they subside to an elevation not exceeding 200 feet in the neighbourhood of Cape Monze, situated 20 miles to the S. W. of Karrachee.

The valleys enclosed by these mountain ranges, and their numerous offsets, vary much in altitude and in general character; most of them are narrow and running parallel to the ranges, while the tillable soil, confined to the line of drainage, and the open space between boundary hills, is frequently an inclined plain, strewed over with boulders and shingle. This description applies particularly to the valley of Shawl, to the base of the Chiltattan mountain, and the various minor ranges extending south and west towards Kelat and Noshki; at which latter point, the mountain, overhanging that place, to the N. N. E. affords a remarkable instance of that glacis slope, which Dr. Griffiths describes as characterizing the physical configuration of the country in the northern parts of Afghanistan; while farther south, this remarkable feature becomes less and less conspicuous, and ceases to occur altogether 50 miles south of Kelat.

The other form of Valley, and from which the greater portion of the agricultural produce is derived, is, generally speaking, entirely covered with good soil, excepting at the base of the hills; which, as before described, are invariably stony, and the great difference between these forms of valley, is in the amount of the tillable soil. Mustang, Kelat, and Bagwana may be noted as particular instances, belonging to this form of valley.

In a country so remarkably sterile as Beluchistan, a great supply of indigenous timber cannot be looked for. Trees abound in the more remote and sheltered recesses of the mountains, to the east of Quetta; where a description of cedar or juniper, which yields good firewood, is found; but it is difficult of access, collected with much labour, and yields not timber fit for building purposes. The Chelghuzeh or Gurn, described as being found in considerable quantities in the ranges of the *Koh-i-Safed*, is met with from the Shawl valley, to some little distance below Kelat, but the tree seldom exceeds 16 feet in height, and is not fit for the purpose of building.

Excepting the willow and plane trees there are none cultivated that do not bear fruit, and among these the mulberry and apricot, which are not suitable for buildings, seem to be the most common. The mode of planting indeed, by which trees are huddled together in thick groves, stunts their growth and renders them of little value as timber, and such trees as are produced in the country may be considered, therefore, to be reared exclusively for the fruit they yield: which, at Mustang and other places in that neighbourhood, contributes materially towards the subsistence of the lower orders, during the summer months. Fuel is generally obtained from low bushes and the southern wood, which commonly occur all over the country, or from camels dung.

The rivers of Beluchistan, which are few, partake of the character of mountain torrents, and are scantily supplied with water from springs; but where met with, like those of the rivers of Afghanistan, they frequently disappear at various distances from their sources. Such is the termination of those in the Bolan pass, and of many of the rivers met with in the downward march from Kelat to the sea: and we may attribute this result to the very absorbent nature of the soil, which produces the same phenomena in the rivers of Kabul.

Before entering on a description of the principal rivers, some notice of the lines of drainage appears necessary, and these may be enumerated-1st southerly towards the sea; 2nd westerly, towards the desert; and 3rd easterly, towards the Indus.

The principal river of Beluchistan is the *Nal*, which rises 16 miles south of Kelat, and in a plain elevated 6000 feet above the level of the sea, from whence the lines of drainage are to the north and south. The Nal river from Kelat has a general direction S. S. W. flowing by Sorahb and Nal Jowhoo; entering the sea 80 to 100 miles, westward of Sunmiani. The length of its course is nearly 400 miles, and may be considered throughout, a mountain torrent, which is generally dry, and flooded only after violent storms.

The waters flowing north from Kelat form one of the principal tributaries of of the Lorah river, which they join in the Poshin valley; whence flowing west, and south-west, towards the great lake of Seistan, they are lost in the sands of the Noshki and Chargye desert, about half way between these two places. Such also is the termination of all the minor streams which flow westward between Noshki and the sea. They are

all absorbed in the desert, and have no apparent communication with the lake abovementioned.

The line of drainage eastward may be best described by a line drawn south by west, from the *Shawl valley* to the parallel of Khozdar, and thence by another line, running along the course of the Baghwana river, south-east, to the *Manchar lake*, as all the rivers flowing eastward within these limits fall into the Indus. Below Khozdar, however, and generally from the neighbourhood of Wadd, for twenty to thirty miles south, the course of the principal rivers (the Puralli and Oornach,) is generally south; and the confluence of both occurs at the town of Beila in Las; whence, under the general name of the Puralli, they fall into the sea, a few miles westward of Sunmiani. One other river deserving of notice is the Hubb, which rises in the mountain ranges, south south-west of Wadd, called "Pubb," whence, pursuing a southerly course it debouches into the sea between Sunmiani and Karrachi, about twenty miles westward of that place. Some few of the minor rivers and water-courses, between the *Manchar lake*, and the line of the drainage of the Hubb, generally flow into the Indus. The Puralli has a course of 150 miles, which like that of the Oornach, is usually dry, or only filled during the floods. The Hubb partakes of the same character, though with probably a larger supply of water from springs; but in all cases the quantity is very limited, and confined to occasional spots.

The above comprises a general outline of the physical features of Beluchistan, which may be divided into two distinct and separate portions, forming the upper and lower country, possessed by the tribes composing the *Jhallawan*, and *Sarawan* states. The Jhallawans are the most numerous and influential portion of the population, while the *Sarawans*, from their inferiority in numbers, are in some measure subordinate to the former. Both tribes are split into numerous subdivisions; and the line of demarkation, dividing these two great tribes, centres at Kelat; but running east and west, extends to Katchi on the one hand, and the desert of *Kharan*, Noshki, and Khej on the other. The Jhallawans, or tribes "*living below*," occupy the whole of that portion of the country south of Kelat, extending to that point where the main road to Sunmiani approaches the Puralli river, distant twenty-one miles north from Beila, the capital of the province of Las; and thence extending eastward, by an imaginary line, they occupy the great *Hala range* of mountains, which divide

Sindh from Beluchistan, and from the Mugsee and other tribes, possessing the southern portion of Katchi. Westerly are the tribes dwelling in the desert of Kharan, Panjgur, Khej, &c.

The Sarawans, or the tribes living above, occupy the country to the north of Kelat, as far as the valley of Shawl and the Lorah river, the ancient boundary of the principality of Kelat, and extend westward, as far as Noshki, Chargye, &c. and eastward to the Hala mountains and northern Katchi. The Sarawans, on the day of battle, claim the privilege of forming on the right of their chieftain, the Khan of Kelat; while the Jhallawans, with equal zeal, bring their numerous clans to form on the left. The chief in person and his body guards occupy the van of the army. The Jhallawans bear a red standard, the Sarawans a yellow, while the Royal standard is green; and the union of the three colors constitutes the national flag, which is borne at the side of the chief, by some distinguished, or favored warrior of the day, who has this honor conferred on him for past services, and retains it only during the pleasure of the chief. The Sarawan and Jhallawan standard-bearers are, however, both hereditary officers, and cannot be deprived of their right, but by the united voice of the nation.

These tribes are held together by a description of feudal tenure, differing from that common among the Rajputs, as well as from the ancient feudal system of the Normans, insomuch as when the various tribes, (and these are all rated at certain numbers according to their strength), are called for by the sovereign on any particular service, they are all maintained at the expense of the state, and on the completion of this service are dismissed to their homes with some trifling mark of favor; while their chiefs, or other distinguished characters, are for important services not unfrequently rewarded by grants of land, on a nominal quit rent. This mode of obtaining feudal right in lands may account for so large a portion of the lands being now held on this tenure; but most of these grants date back to the period of Nasir Khan the Great, though some were held, at a period anterior to this: and the chronology of the Brahui-grants is seldom earlier than the date of the reigning prince.

The inhabitants occupying the upper part of Beluchistan, the Kohistan, and the neighbouring desert, are generally termed Brahuis; but those possessing Sindh, Lus, and the coast of Mekran, are called Beluchis.

These people are distinguished more by their difference of language

than by their appearance, manners or customs; and this difference is marked and decisive, as the Brahui speaks a language which bears little or no affinity to any known tongue of the present day; while the Beluchi converses in a corrupt dialect of the Persian, easily comprehended by those who understand this language. * The Brahuis and Beluchis may not unaptly be termed the Highlanders and Lowlanders of Beluchistan, though many of the latter be found residing in the hill country, while the former here and there occupy the plains. They differ from each other nearly in the same proportion as the Scotch Lowlanders differ from the Highlanders, but do not possess any peculiar characteristic which might mark them, as a separate people, though the dissimilarity of their language would favour an opinion of their origin being different. The long visage, high and aquiline features of the Jews, are common to both, but in a less degree to the Brahui, who is generally a hardier character than the Beluchi. They are both resolute and warlike, implacable in their hatred, and revengeful; but are hospitable, and possess many of the virtues and wild notions of honor among the Arabs, particularly in those parts where, like them, they are the children of the desert. They are also trustworthy, and having once undertaken a trust never betray it.

Numerous as are the tribes which occupy Beluchistan, the country is but thinly populated; as the people are for the most part pastoral, and wander from place to place with their flocks and herds, just as the want of forage and water may render necessary. Their habits are often predatory, and many frequently eke out a precarious existence, partly derived from their flocks and partly the gain of plunder and rapine. They adapt their movements, as much as possible, to meet the changes of the seasons;

* In the first volume of the Transactions of the Bombay Geographical Society will be found some explanatory notes of mine on the vocabularies of languages, spoken in the countries west of the Indus, collected by Lt. Leech.—The Beluchis claim an Arabian descent, but their language, which is Persian mixed with a small proportion of Sanskrit, Pushtu, and Arabic terms, indicates their Indo-Persic descent; and the origin of the *Brahuis* may be traced to the same source, as their language is composed of many Persian words, makes use of the Persian numerals, and forms the gender of its nouns after the rules of Persian grammar.—Several words of the *Brahui* language have been borrowed from the *Pashai* and other dialects of tribes, inhabiting the *Hindu-Kush*, which are cognate with languages of a *Sanskrit* origin, and *Hindu* stock.—*Editor.*

and during the winter descend into the lower and warmer parts of Katchi and Sindh, while in summer they find a refuge, from the great heats, in the higher parts of Kohistan.

Their habitations are well suited to this wandering mode of life; as they generally dwell in tents, called "*Gidans*," made of a dark coloured felt, or blanket; and a collection of these is termed a "*Toman*" or "*Khail*." So general indeed are these tents or dwellings, that they are found scattered over the whole face of the country; and strange as it may appear, several places, marked in our maps as fixed towns and villages, are nothing more than "tomans" or "clusters" of tents; among which may be mentioned Noshki, Kharan, &c.

The Government of the country is vested in an hereditary chief, and minister, to whom are occasionally added the leading chiefs of the principal tribes of the nation; but the power is, as may be readily imagined, of a character more or less despotic according to the energy, physical and mental, of the chief who restrains and governs the wild and reckless tribes subject to his control, and more disposed to openly defy than submit to his authority. The chief, who would bind such subjects to his will, must possess high qualifications for command, bold bearing, recklessness of danger, personal prowess, and physical strength; which, while they are well calculated to win the admiration of barbarous minds, overcome and compel them at the same time to obedience. These attributes were conspicuous in the character of Nasir Khan the Great, and in an inferior degree possessed by the late chieftain, Mehrab Khan; but as they are rarely combined in one person, we find but too generally in Beluchistan that the allegiance shewn to the sovereign by his subjects, is mainly regulated by his power to enforce it; and the more distant subjects therefore yield but a nominal, or tardy obedience, while those nearer to his person, and more immediately under his control, are ruled with an iron hand.

In the loose and disjointed system of Government, which prevails generally throughout Beluchistan, the elements of anarchy and confusion are abundant; being constantly developed by internal feuds, carried on between tribes, with an animosity only known to Asiatics, and which requires the utmost exertion of power, on the part of the Khan to suppress. To this state of things may be attributed the insecurity of persons and property of travellers and traders, so frequently occurring in the neighbour-

hood of the *Baranlakh*, and other remote parts of the country, which, from their distance from the seat of power, favor the commission of such outrages as cannot be punished.

The towns and villages of this country are few and far between, and generally lie on the main cafila roads, varying from forty to fifty miles from each other. They seldom, (Kelat and one or two others excepted,) exceed in number forty to fifty houses, are mud built, with flat roofs, and are seldom of more solid materials except when a chief of note resides in them.

It has been observed that the population of Beluchistan is scanty; and it is impossible from the wandering habits of the people to arrive, at even an approximation of their true numbers. Neither can we ascertain the amount of population by a reference to the numbers of fighting men, that each of the two great tribes, of Sarawan and Jhallawan, can produce for war under their tenure of serving the Suzerain, as during war only a small portion of the population compose the military body.

The sub-divisions of the Jhallawans are forty-two in number, of the Sarawans nineteen amounting in the aggregate to 10,090 fighting men, but there can be no doubt but that a number of able bodied men, capable of bearing arms far exceeding this amount, could be brought together on a case of emergency.

There is an impossibility of large bodies of fighting men subsisting in a country so destitute of forage and provisions as is Beluchistan, and should any rebellious rising happen therefore, it may prove formidable for a time, from the numbers collected together, but can only continue so for a short period, as every individual added to the fighting body tends to diminish the means of their subsistence, and a few additional days or hours will frequently suffice to disperse a Beluchi horde, which must break up for want of provisions, and disperse over the country in search of food. Once disunited it can seldom be brought together again.

Regarding the produce of the country little can be said, as the people chiefly belong to pastoral tribes, seldom occupying themselves in agricultural pursuits, as the little grain they require is drawn generally from the rich plains of Katchi. In the districts around Mustang, Kelat, Baghwana, and Khozdar, &c. wheat and juwarree are cultivated; yet the supply is but limited, and barely suffices for the cultivators and land-

holders, on whom they are dependent. It would indeed be difficult in a country naturally so sterile, and so scantily supplied with water, to look for agricultural produce to any extent, even with the best management.

The staple commodity of the country is wool; which, in the neighbourhood of Wadd, and generally in the southern parts of Beluchistan, is produced of a quality so superior, that, of late years, it has greatly attracted the attention of our merchants as a profitable article of trade; and is found in great quantities all over the country.

The manufactures of the country are scarcely worthy of notice, excepting the carpet, which approximates somewhat to the Persian, and the course description of blanket, made from equal parts of goats hair, and sheeps wool, which is used for tents (or Ghidans,) that are made however south of Khozdar, and to the west, from a description of matting, called "peech", and manufactured from either the leaf of the date tree, or the palm. In certain of the southern districts, the tents of various tribes occupying them are formed entirely of this matting; and from the coast of *Mekran* generally, much of it is annually exported to Bombay. Arms, such as swords, shields, matchlocks, and other weapons of defence, are brought from *Kabul*, and other northern towns, but many of these are of Persian and Indian manufacture.

Cotton cloths, which are in general use in the country, are of Indian produce. Woollens are brought from Afghanistan and Katchi; and are frequently of European manufacture, either English or Russian; while the cloaks and *fur* dresses, required for the winter, are exclusively from Kabul and Kandahar. Embroidery and needle work, either in silk, gold, or silver, is in considerable repute; but this manufacture is invariably made by the women, who employ all their time in making up their own, or their husband's dresses.

Horses are bred of a very inferior description, all over the country; but in the neighbourhood of Jeherri, twenty miles south-east of *Kelat*, a strong bony description of animal is found; many of which are annually sent to the Bombay market. They are, however, inferior to the Herat and Persian horses. The district of Sheráwak, to the south-west of Kandahar, is famous for its breed of camels, whence south to *Mekran* these animals are extensively bred. The hill camels, commonly found on the eastern frontier, and bred in the valleys, lying be-

tween the ranges of the *Hala mountains*, are by far the most enduring of this description of animal. They are small and hardy, and well adapted to undergo the difficulties of that country; and far excel, as beasts of burden, those bred in Katchi and Sindh, which last are ill calculated for the hill country. The camels of *Lus* and *Mekran* are much esteemed by the natives, and may be purchased to almost any extent.

Of the revenue of the country, I am unable to offer any adequate opinion beyond that it is limited in the extreme, the district of Mustang is perhaps the most productive, and yields from 40 to 50,000 rupees annually. *Kelat* probably as much, while Baghwana may be rated at half that amount, and Khozdar at one-fourth. But so vague is all information connected with this point, that what is now stated can only be considered an approximation. The principal source of revenue is derived, unquestionably, from the province of Katchi, which is particularly fertile, and capable of yielding much more than it now does; and without which the principality of *Kelat* could not maintain itself. The revenue is generally, if not entirely, collected in kind; money is little known in Beluchistan proper, and indeed there is no coin of the country, excepting the Company's rupee which, within the last three years, has been scattered by us with so profuse a hand, that it is now the only current coin of the country.

Memorandum of Latitudes, and elevation of places in Beluchistan, taken from several observations.

Names of places.	Latitudes.	Elevation in feet.	Remarks.
Kelat	Lat. 29° 00′ 10″ N.	6,043 feet.	
Sorabb and Anjira	" 28° 27′ 15″ N.	.....	A lofty range of hills to the eastward.
Baghwana.....	" 27° 56′ 23″	3,873 "	Lead and Antimony mines in the neighbourhood.
Wadd	.....	3,739 "	
Baran Lakh	" 26° 57′ 40″	3,000 "	The Lat. the mean of three observations.
Beila	.....	300 "	
Sunmiani	" 25° 25′ 4″	at the level of the sea	

Art. III.—*Critical View of the Theological and Ceremonial System of Zoroaster. Translated from the French of Anquetil du Perron:—With Introductory Observations.* By the Rev. J. Murray Mitchell.

Introductory Observations.

The religion which is said, by its professors, to have been promulgated by Zoroaster, is entitled to a high place among the objects of antiquarian and philosophical research. Notwithstanding the exceeding obscurity which hangs over many questions connected with the Zand-Avastá and its reputed author, it is on all sides admitted to be highly probable that the religion which is now professed by the Pársis of India has sustained no *essential* alteration for upwards of 2000 years. So extended a duration would, independently of any other reasons, entitle the system to attentive consideration; but the historical interest pertaining to the once mighty Persian Empire invests the study of this religion with an importance, which corresponds to the elevated rank its professors formerly enjoyed among the nations of the earth.

Residents in Western India have a strong additional inducement to prosecute inquiries into the Zoroastrian faith, in the peculiar and important position which its professors hold in this country. This religion has not, like that of ancient Greece or Egypt, perished from off the face of the earth; it is a living creed, moulding the character and the destiny of myriads of an active and intelligent race, the far greater and more influential portion of whom are our fellow subjects, and mingle largely with ourselves in the affairs of ordinary life.

It should seem, too, a fitting thing that any inquiries that need to be instituted into the Zoroastrian system, should be made in India, in which they can be prosecuted with many and obvious advantages, which cannot be enjoyed in the Colleges and Literary Societies of Europe. And, if our own Society is to take a part in Oriental investigation, the subjects of Parsiism and Pársis appear to belong to it by special right. It is unnecessary to say that members of the Bombay Branch R. Asiatic Society have entered into such investigations with zeal and success, or to dwell on the important contributions towards the elucidation of this subject which have been made by Mr. Erskine, Dr. Wilson, and others.

It will readily be understood that the object of the present paper is not to present the results of any new inquiries into the Zoroastrian religion, but to diffuse over a wider circle the knowledge of facts which have already been discovered. The principles of the system are very imperfectly comprehended by the great bulk of educated Europeans in W. India,—and the general mind even of our own Society refuses to enter, with any considerable measure of interest, into the subject, unless it be divested of intricate literary disquisition. The claims of the paper of which a translation is now presented, may be rested, then,—should higher merit not be conceived to belong to it,—on its simplicity and conciseness,—on its affording a popularized view of this very interesting subject. But it possesses a higher character. Having had occasion, in the course of my own studies, to seek a brief, yet comprehensive and systematic, view of the Pârsi religion, I found the article, the translation of which is subjoined, to be, on the whole, the most satisfactory of the statements to which I had access.* It is now presented under the impression that it will be found interesting and useful much beyond the circle of professed Orientalists.

Whatever, connected with the present subject, has proceeded from the pen of Anquetil du Perron, is entitled to profound respect. After all that has been accomplished by later inquirers, the writings of Anquetil on the doctrines and history of the Zoroastrian faith are still standard works. While his philological attainments must be admitted to have been rather extensive than accurate, and his ardent temperament predisposed him to form hasty conclusions, still, his laborious research, and indefatigable zeal in every thing connected with Zoroastrianism, enabled him to amass an amount of information connected with his favorite study, which has proved of immense value to succeeding investigators, and the additions to which, although important in themselves, have not *comparatively* been great,—or, at all events, affect the details, not the essential part, of the system.

We may glance, at some interesting facts connected with the introduction of the Zand-Avastá to the notice of Europe. The well known Dr. Hyde, towards the end of the 17th century, had two small Zand MSS., in

* The library of our Society is not very well furnished with works connected with the Zoroastrian system. We want, in particular, Kleuker's translation of Anquetil with its valuable notes, and Rhode.

his possession; but we have no evidence that he was able to make the slightest use of their contents. George Bourchier, &c. an Englishman, obtained a copy of the Vandidád Sáde, at Surat, in 1718. It was brought into England in 1723; but no one could decypher the Zand characters. "Long after this," Mr. Fraser, a Bombay counsellor, procured two Zand books at Surat; but could, by no inducement, prevail on the Pársi priests to teach him Zand or Pahlvi. Thus matters rested until 1754, when Anquetil happened to see some Zand words that had been copied from the Vandidád Sáde. He instantly formed the determination to procure and translate, if possible, the whole work. With remarkable resolution, he enlisted as a soldier, sailed to Pondicherry, from which, amid many hardships, he found his way to Surat. He there succeeded in procuring the coveted MSS., studied Zand and Pahlvi, and, in 1762, returned with his prize to Europe. His great work, containing a French translation of Zand and Pahlvi books, with various disquisitions, appeared in 1771. Besides this, he wrote some valuable articles in the Memoires de l' Academie des Inscriptions.

The original of the paper now presented will be found in Anquetil's Zand-Avasta, vol. ii. p. 592—604. The entire article has not been translated; the second part, which is occupied with a discussion of the *moral* system of Zoroaster, has been, for the present, omitted, but may perhaps be afterwards supplied, if, on fuller consideration, it appear to to possess equal merit with the rest.

The heading which Anquetil has given this article, and which has been retained in the translation, demands a remark, lest it lead to serious misconception. He calls the paper a view of the "System *of Zoroaster*." In so calling it, Anquetil assumes what it is not possible to prove, viz. that the system propounded by that celebrated legislator is the same as that which is contained in those Zand and Pahlvi works from which the present summary is drawn. This assumption is not indeed so extraordinary as another on which Anquetil proceeds in most of his writings, viz. that the Zand-Avastá is the actual production of Zoroaster,—an idea not tenable for a moment with respect to any part of the Zand-Avastá except the Vandidád, and encumbered with many difficulties in regard to the Vandidád itself. Reference has, indeed, been already made to the fact that, in *essential points*, the Persian religion, more than 2000 years ago, was the same as that of the Pársis in the present day,—the notices

of it contained in the Grecian writers from Herodotus downward, agreeing, so far as they go, in a remarkable manner, with what still exists in the chief Pársi books. But that the supposed great founder of the system, Zoroaster, promulgated it in the shape and with the completeness it now possesses, is not probable, or, at all events cannot be demonstrated. In speaking of this religion, it were well to be accurate in the names by which we designate it. In referring to it in its general features, and as a whole, the terms Zoroastrian and Pársi may be used indiscriminately without leading into error. In critical investigation, however, this lax use of terms cannot be allowed. The system of Zoroaster,—the system of the Zand books,—the system of the Pahlvi books,—the system of the Persian books written by modern Pársis,— and the system of the Pársis of our own day,—must on no account be assumed to be identical,—but, in every case where strict accuracy is required, must be carefully distinguished from each other. Anquetil, it must be confessed, has failed in this point. He mingles the views of the Bundeshne—a Pahlvi work which he himself admits to have been composed as late as the 7th century of the Christian era—with those of the Zand writings, which—to speak cautiously on a point which Orientalists of high name have strenuously contested—are, probably, several hundred years more ancient.

Considerable difference is admitted to exist between the Zand and Pahlvi works. Speaking of the Pahlvi Bundeshne, professor Stühr remarks that "its contents do not agree with those of the Vandidâd,"* and Mr. Erskine, that "much of the cosmogony [of the Bundeshne and later works] is evidently Chaldean and later than the Musulmans."† Any inquiry into the very interesting question, *What is the religious belief of the present Pársis*, will be met at the outset by the difficulty of discovering how many and what precise books the community now deem authoritative. The difficulty lies in the want of agreement among the Pársis themselves on this fundamental point.

Before concluding these introductory observations, it may be well to remark that Anquetil du Perron, in his expositions of the Pársi religion, manifests a desire to exhibit it in as flattering a light as possible. He was naturally led to represent his own discovery in a favorable aspect, and the cutting sarcasms of Jones, Richardson, and others, who represented him

* Oriental Christian Spectator for 1840, p. 415.

† Bombay Transactions, vol. ii. p. 222.

as having risked his life, and wasted his time, to procure what was essentially worthless, redoubled his desire to uphold the character of the Zand-Avastá. Much too had been expected from the writings of the far-famed Persian legislator, and the Abbé Foucher and others, who had attentively studied all the classical notices of Zoroaster, could not conceal their mortification when the mystic volume was drawn forth to light.[1] His anxiety not to disappoint their hopes must have swayed Anquetil, however unconsciously, in his expositions. He earnestly labours, in the paper we now subjoin, to shew that the doctrines and institutions of the Zand-Avastá are consistent with reason;—let the reader judge whether his success is equal to his zeal.

All things considered, however, Anquetil is an able illustrator of the Pársi faith. No one will call in question the great extent of his acquaintance with the facts of the system which he unfolds; and the following production of his pen would, of itself, afford evidence that his mind was not wanting in philosophical insight and comprehensiveness.

The following are Anquetil's remarks. The translation, though not slavishly literal, is pretty close.

I. The theological dogmas, on which the religion of the Pársis is founded, exist in a scattered form throughout their ancient books, and the shape which they assume in these books, will, no doubt, appear strange even to those who are most familiar with the writings of Eastern nations. Without anticipating the judgment which may be passed on these dogmas, and on the manner in which they are presented, I venture here to arrange them in such an order as will convey a sufficient idea of their connexion and relations. These dogmas form a system, the principal points of which, (as I have shewn in a work to which I have already referred,) are the following:

1. *Time without Bounds*, the first principle, which creates the first light, the first water, original fire, Ormasd and Ahriman:—The Word, which preceded all created beings, and by which the creation of these beings was effected:—Ormasd and Ahriman, secondary principles, active and productive,—the first, essentially good and the source of all good,—the second, corrupt and the source of all evil.

2. The duration of bounded time, fixed to twelve thousand years, by

[1] Memoires de l' Academie des Inscr. t. xxxix. p. 714.

'Time without Bounds, and divided between Ormasd and Ahriman:—The war between these two principles, and the victories which they alternately gain over each other, terminated by the triumph of Ormasd.

3. The Feruers, [Farohars] or first models of beings, which Ormasd creates to combat Ahriman, and of which the most precious in his eyes are the Feruer of the Law, and that of Zoroaster commissioned to re-establish, by the publication of that law, the glory of the master of Nature:—The successive production, in favour of these Feruers, of the different spiritual and corporeal beings which compose the world of Ormasd, and, in particular, of Iran Vej,—a world to which Ahriman opposes wicked spirits, and a world evil and corrupt like himself.

4. The distribution of the universe, all the parts of which are under the influence of the good spirits, who were created by Ormasd, and are themselves obedient to that principle of good,—so that there is a chain of agents which ascends up to Time without Bounds:—The creation of the first bull, from which human kind, animals, and vegetables, are derived,—that of Kaiomars,—that of the soul, formed pure and immortal,—of man, created just and free:—The sin of Meshia and Meshiane, parents of human kind:—The cause of the mixture of good and evil which appears in nature,—a mixture which results from the contrary operations of the subjects of Ormasd and those of Ahriman.

5. Finally, the consigning of man to death; the abode destined for the righteous; that reserved for the sinner:—The resurrection of the body, preceded by the conversion of the whole world to the law of Zoroaster, and followed, according to the order established by Time without Bounds, by new punishments, which open to the sinner the gate of Gorotman:—Sinners purified by the pains of hell, by the fire of metals, and then made eternally happy along with the righteous:—The general re-establishment of Nature: hell itself renewed; the world of Ahriman destroyed; and Ormasd, on one side, with the seven primary Izads, [angels],—on the other, Ahriman, accompanied by the seven primary Dews, [devils]—together offering a sacrifice of praise to the first Being.

It is on this system—the whole of which is understood by few of the Dasturs [chief priests] themselves, which the best-instructed understand literally without seeking any allegorical sense, and of which the Pársi works do not furnish the key—that the religion of the Pársis rests. The whole properly reduces itself to two points.

The first is to recognize and adore the Master of all that is good, the Principle of all righteousness, Ormasd, according to the form of worship prescribed by him, and with purity of thought, of word, and of action,—a purity which is marked and preserved by purity of body, which must always accompany it, and which is found only in entire submission to the law of Zoroaster: next, to have a respect, accompanied with gratitude, for the Intelligences to which Ormasd has committed the care of Nature, —to take in our actions their attributes for models,—to copy in our conduct the harmony which reigns in the different parts of the universe,—and generally, to honour Ormasd in all that he has produced.

The second point of the religion of the Pársis consists in detesting the Author of all evil, moral and physical, Ahriman,—his productions, and his works; and to contribute, as far as in us lies, to exalt the glory of Ormasd, by enfeebling the tyranny which the Evil Principle exercises over the world which the Good Principle has created.

On these two points bear the prayers, the religious practices, the civil usages, and the moral precepts, which are presented in the Zand and Pahlvi books; and these different objects arise, as we shall see, from the theological ideas of the legislator of the Persians.

As the Law is, so to speak, the body under which has been manifested the primeval Word which created the world, the reading of the books containing it is homage rendered to that Word, and becomes accordingly of indispensable necessity. Besides, those books, when read with the requisite dispositions, must possess on earth an efficacy which corresponds, in some measure, with that evinced by the primeval Word at the origin of beings.

Prayer is one of the duties most strongly enjoined, because man, continually exposed to the assaults of Ahriman, stands in need of the succour which it procures; and because it affords opportunity for those Intelligences to whom it is addressed, to fulfil the object for which they were created.

The Priest prays for himself,—for all the Pársis,—and in particular, as in the days of Herodotus, for the king whom Ormasd has placed over his people; and, to give greater efficacy to his prayers, unites them to those of all the Pársis, of all the souls acceptable to Ormasd, which have existed, or shall exist until the resurrection. He declares also that he takes part in the good deeds of all the righteous, and that he joins his

actions to theirs. This communion of prayers and actions appears in all the forms, and all the offices, which compose the liturgical works of the Pársis. It is well adapted to maintain the spirit of peace and union which ought to characterise a people who profess to adore the Author of all good.*

The Pársis commence their prayers with a sincere confession of the sins they have committed. They address them to Time without Bounds,—to Ormasd,—to *the numerous people created in the beginning*, that is to say, the Amshaspands, and other celestial beings, who preside over the different parts of the universe. The prayers made to these are relative to their functions; if they are stars, to the time of their appearance. The sun is prayed to by day, the moon by day and night; Mithra is celebrated because he contends against the productions of Ahrimun, and renders the fields fruitful; such an Angel watches over the waters, and such another defends the soul as it prepares to quit the body.

Next to the celestial beings, the whole of Nature exposed to our eyes deserves, say the Pársis, our adoration, because it proceeds from Ormasd. It does not contain any species of being which is not mentioned in the Zand and Pahlvi books. Some of these are employed to celebrate others; wood and odours enter into the offerings which are made to the elements, the stars, &c.

In the number of the elements is material Fire, which represents, although imperfectly, the original Fire which animates all beings, forms their relations, and acts from the commencement.

This original Fire was, and still is, manifested on earth in trees, animals, and man, in different modes which are termed *sons of Ormasd*, either because there exists a more intimate relation of nature between Ormasd and Fire, than between other creatures and him from whom they received their being;—or, because that element is, like Ormasd, the most universal principle of life and motion.

Zoroaster, then, regarding Fire as the purest symbol of the ever-active Divinity, was naturally led to recommend that special worship should be paid to it; and as, of all the elements, Fire is the only one which is not perceptible, (unless when kindled), the legislator was led to order the erection of altars, (or fire-places) on which it might be kept up.

* A very unnecessary remark. Anquetil forgets that he is now stating the system, not defending it. This is not the place for controversy; or it would be easy to refute the view he expresses. M.

In this manner Fire became the most usual and striking object in the Persian worship. Hence the remark of Strabo,* that, to whatever god the Persians might sacrifice, they first invoked Fire. We see, in fact, Cyrus sacrificing first to Vesta † (fire), and then to Jupiter; and the Pársis recite the greater number of their offices in the presence of that element; the *Niáish* of Fire is celebrated day and night, and the *Mobed* [priest] is commanded to put wood and odours in the fire in the five *gahs* [watches] of the day.

We cannot, after this, be surprised that he who defiles the element of fire, should be severely punished. It is forbidden, as in the time of Clitarchus, referred to by Diogenes Laertius,‡ to burn dead bodies, because they are impure. The same reason induces the Pársis to remove dead bodies from the neighbourhood of fire. He who blows the fire with his mouth, is worthy of death,—because, the inside of the body being impure, the breath which issues from it stains that element.

The detailed statement of the ceremonies which must be practised for the purpose of restoring fire to its first condition, when it has been defiled, marks its extreme purity. The sap, nourishing the tree, makes it grow,—changes, in some sort, its body,—and thus purifies it, when it has been defiled. Not so with fire; and it is to supply the place of the successive alteration which Nature produces in vegetables, that the Zand books command that the fire, in which a dead body has been burnt, be made to pass in some sort through nine different fires, before it be exposed in the *Dad-Gah* [Fire-temple] to the worship of the Pársis. The fire Behram, protector of the provinces, is the extract of 1001 fires taken from 15 different species of fire.

But the worship which the Pársis render to Fire, as well as to other creatures, is subordinate to that of Ormasd, the ascription of praise to whom begins and ends all offices of religion.

These offices can be pleasing to the Divinity only when they proceed from a pure heart; and purity of heart supposes purity of body. The first consists in the right regulation of the thoughts, words, and actions;

* ὅτῳ δ' ἂν θυοῦσι θεῷ, πρώτῳ τῷ πυρὶ ἴυχονται. *Geograph.* L. XV.

† ὁ Κυρος πρωτος μεν Εστιᾳ εθυσεν επειτα Δει βασιλει και ειτενι αλλῳ θεῳ οἱ Μαγοι εξηγουντο. *Cyropad.* L. VII.

‡ Diogenes Laertius in Proœm. ad vit. Philos. Strabo, loc. citat.

it is accompanied by the knowledge of the Law, and maintained by good deeds performed with understanding. The priest, who seeks this purity must do good like the first of the Amshaspands, be wise, true in his words, great, full of intelligence. Such are in fact the dispositions with which Zoroaster presents himself before the Supreme Being. Purity of body is necessary, because it defeats the attempts of evil spirits, and, by obliging the Pársi to maintain a continual circumspection, it renders him more attentive to the duties of the Law, whose principal object is to destroy the empire of Ahriman.

The obligation to preserve purity of body has given rise to a multitude of observances in the Pársi religion. For example, in consequence of being the offspring of Meshia and Meshiane, men are born impure,* because the body of their first parents came from that of Kaiomars, which Ahriman had polluted; and ablutions, although they purify the outside of the body, cannot purify the inside:—whatever, then, issues from the latter, is impure. Hence the obligation, when praying, or when eating, of having the *Penom* on the face, to prevent the spittle from staining whatever it might happen to fall on. Hence, also, as in the days of Herodotus, the prohibition against throwing into the water any thing that comes out of the body of man. Hence, farther, the obligation to render thanks to Ormasd, when the evil spirits who besiege the interior of the body are chased from their domain by the fire which animates man,—a victory of which sneezing is the sign. During prayer, meals, and natural functions, it is not allowable to speak; only inarticulate sounds must be uttered,—such, nearly, as proceed from dumb people. This is called speaking the *Vaj* (Báj). In these various circumstances, the evil spirits seek to distract man, or to insinuate themselves into his body, while his senses are much occupied; and hence the stronger necessity to attend to these observances.

The same principle leads the Pársis now, to remove, as their ancestors did in the days of Herodotus, from inhabited places, lepers and people having contagious maladies,—which diseases came from Ahriman. On the same principle depend the last duties rendered to the dead; the ceremonies then practised drive away the Dews, who besiege the corpses and

* The Pársis maintain that, at a man's birth, Ahriman presents himself to his soul, as he did to Meshia, and says to it in like manner, "I am the Author of Nature." They add that the soul believes him, and so becomes criminal.

pollute every thing around them. Besides, man, when he ceases to live, is exposed to the assaults of Ahriman and unable to defend himself. Hence the rigour of the penalties decreed against those who approach or touch the body, before the prescribed duties are fulfilled. The same precautions are ordained in connexion with the dog when he dies, because that animal, like man, is impure. These obligations render the Pársi attentive both in watching over the life of his fellow-creatures, and in preserving an animal [the dog] that is equally useful to him during life and after death.

But, as the weakness of man scarcely allows this scrupulous guardianship over himself, it was necessary that means should be provided for the recovery of purity when lost. Such is the object of the purifications prescribed by the law of Zoroaster. Water, which forms the principal material of these, chases away all evils and bestows all blessings; and the juice of the *Hom* tree is, during this life, a powerful principle wherewith to oppose the assaults of evil spirits.

Even involuntary defilements require purifications for their removal. Hence the necessity of ablutions before and after natural functions; the order to wash the new-born infant; the purifications prescribed to women after childbirth, their critical periods, &c. But when the person who is defiled, finds it impossible for him to practise what the law enjoins, a sincere repentance, and prayers offered up with a humble and pure heart, supply the place of outward ceremonies; and, if the punishment of death is decreed for certain voluntary legal impurities, it is because man, to whom the law is addressed, as he is a free being and master of his own actions, is the real cause of his own suffering;—and also because the Pársi, being the follower of a religion in which all is directed against the Author of evil, ought to know that faults of this kind give superiority to Ahriman, degrade (so to speak) Ormasd, and, on this ground, are capital crimes. On the other hand, the Dastur believes that, by this severity, he renders the most important service to the erring party; for, when the latter receives punishment, he exhausts on himself the malice of wicked spirits, triumphs over them, and obtains, by submission, a right to be admitted into the abodes of the blessed.

Thus far we have seen Zoroaster prescribe observances connected with his theological views and intended to render man worthy of the favour of Ormasd. But, in this class of precepts, the legislator had still another end

in view, the general good of Nature. These observances had, then, to be, like his morality, directed toward the private good of the Pársi. They thus become, as such, laws of police, frequently relative to the country in which the Pársi legislator dwelt. I stop to notice some of these observances.

Ridicule is often thrown on prohibitions made in certain countries as to the eating of this or that kind of food: while, if one were to examine the soil, temperature, &c. of those countries, the reasons might be discovered which may have led to the prohibitions in question.

In India, for example, no beef is eaten. This has been attributed to the respect paid by the Hindûs to the cow, which is worshipped as one of their divinities; or it has been ascribed to the doctrine of transmigration, which is current in the country. I do not, at present, intend to combat this explanation; but the following facts have fallen under my own observation.

1. The ground, in countries lying under a burning sun, has less moisture; the pasturage is less rank and nourishing, so that the animals are proportionally less numerous than in cold or temperate climates. Besides, oxen in India are employed for carrying burdens and for draught; there are few private persons in large towns, and even in small ones, who do not keep them for these purposes, and to give milk; so that, all things considered, there is no greater number of oxen in the country than is required; and, were people to eat beef as is done in Europe, the race would not suffice even for labour.

2. Beef is too rich a kind of nourishment for those climates. The French rarely eat it in Bengal; they have it not at the coast, and are all the better for the want of it. The English eat beef in all their factories, and we sometimes see at Calcutta in Bengal, the fourth part of the colony carried off by dysentery in two years. Independently, then, of religious reasons, the people of India do well to abstain from beef.

In putting in the number of the productions of Ahriman, venomous creatures, reptiles, insects, and wild voracious beasts, such as the wolf, Zoroaster has, in like manner, had in view the special good of the Pársi. He thus orders him to destroy such animals, and, at the same time, forbids him the use of their flesh, which is naturally unwholesome.

Of all known religions, that of the Pársis is perhaps the only one in which fasting is neither meritorious nor allowed. * The Pársi conceives

* Porphyry informs us (De Abstin. Li.) that Darius ordered it to be

that he honours Ormasd by eating plentifully; because the body, when fresh and vigorous, renders the soul stronger to resist the attacks of evil spirits; and because man, feeling less uneasiness, reads the word with more attention, and has more courage to perform good works. Accordingly, several celestial beings are specially employed to watch over the [bodily] good of man. Rameshne, Kharom, Khordad, and Amerdad, supply him with abundance and pleasures, and it is the last-mentioned Izad who produces taste in fruits,—the savour which leads to their being used in the way that Ormasd intended in creating them.

Purifications, in warm, or moist and marshy, countries, contribute to health,—and these terms describe the climate of Persia: the provinces of Guilan and Mazendran, situated in the north, are full of unhealthy exhalations, while a fierce sun burns up the southern provinces. And, if the most efficacious purifications are first made with ox's urine, it is on account of the virtue which the cure of Jamshid had shewn to exist in that liquid, or rather, because the bull gave birth to the human race. But purifications are always concluded with water, after the application of earth, which must dry up the last drop of the urine, when it has become impregnated, as it were, with all the strongest part of the defilement.*

But, be the motive of this institution what it may, it obliges the Parsi always to keep an ox [or cow] in his house. He must also, on account of the *Sag-did*, [dog-gaze] have at least one dog; and the qualities of the cock, who is the wazir of Serosh on earth, and defends men against the snares of evil spirits, impose on him the necessity of having a cock too. These three animals are the most necessary to a Parsi; indeed they supply all his wants. The ox serves in labour and draught; the cow supplies milk; the dog guards the flocks by day, and the house by night; the hen gives eggs;—the cock gives the signal for commencing prayer, the labours of the field, and other duties.

The place to which dead bodies are conveyed ought to be on mountains, or at a fixed distance from great roads, cultivated fields, and inhabited places. Now, we know that, independently of the legal impurity

inscribed on his tomb *that he had been the master of the Magi*; and, according to Athenæus, (Deipnos. L. X.) it also bore *that this prince could drink deep and carried his wine well*. These are two characteristic qualities of a Persian prince.

* Anquetil here leaves the impression that the urine is used only to wash the body. In the greater purifications, it is also drunk. M.

which portions of dead bodies transported by carnivorous animals might produce, the atmosphere surrounding such receptacles of the dead is generally very unwholesome.

Even the festivals of the Pársis, at least the most solemn of them, seem intended only to recal the grand events of Nature, which personally interest the Pársi,—or to mark the seasons. I have spoken of the *Gahanbars*, [the six periods of creation,] which are celebrated in the periods of the years answering to those at which Ormasd, at the origin of the world, created the beings that compose the universe. Next to these festivals, the most solemn are the *Nauroz* and the *Mehergan*. The first of these, in the time of Zoroaster, answered to spring; and the second, which is six months later, to Autumn,—seasons, in which the birth and the fruitfulness of Nature announce the triumph of Ormasd. It was probably for this reason that marriages among the Persians used to be celebrated at the vernal equinox. *

Finally, the ceremonies which accompany interments,—the prayers recited both before and after,—all tend to shew the Parsis that, to the righteous, death is only the passage to a happy life,—and, to the wicked, only the commencement of punishments which expiate their sins, and from which the prayers of the living can deliver them. The love which they bear to relatives, masters, and friends, who are for a time separated from them, is exhibited by these prayers. Their law goes still farther; when a man has committed certain faults, it enjoins on the relatives and friends of the deceased to do pious works,—to give alms, in expiation of those faults. These performances shorten the period which the guilty deceased has to spend in hell.

It was worthy of him who regarded created Intelligences as the ministers of the Eternal, (Time without Bounds)—and the death of man as the short separation of the parts which form his being, and which will, one day, be reunited,—of him who, as I shall afterwards shew, made the essential part of his law consist in that which Nature inspires, and connects with the purest and most tender pleasure, viz. the respect of the creature for his Creator and all that he has made, the reciprocal love of parent and child, husband and wife, ruler and subject, master and scholar, —it was worthy, I repeat, of such a Lawgiver as this, to break down the

* οἱ δε γαμοι κατα τας αρχας της εαρινης ισημεριας επιτελουνται. Strabo, *Geog.* L. XV.

barrier which death but too frequently puts to affections so lawful, and thus render eternal as its principle the bond by which he sought to unite all the parts of the universe. *

Art. IV.—*A Discourse on the object and progress of investigation, into Oriental Literature and Science; Read at the Anniversary Meeting of the Bombay Branch R. A. S. during the year* 1844. By James Bird, Esq.

Nearly forty years have elapsed since the institution of the *Bombay Literary Society*, now a Branch of the Royal Asiatic Society of Great Britain, without the time-honored custom of other Societies, to review at their Anniversary Meetings, the intended objects and progress of their inquiries, having ever been observed in this. It is not too late, however, to introduce into this Institution a practice, found so beneficial to the interests of other similar associations: and, on this interesting occasion of submitting to the meeting of the Society the progress made in collecting subscriptions for "the Malcolmson gold medal," to be accorded, annually, for the best paper, on the Natural History and Literature of India, I will, with your permission, draw attention to the chief objects of investigation, for which this and other similar Societies have been established.

To investigate the Literature and Sciences of Asia; to inquire into the *Geography*, *Palæography*, *Philology*, *History*, and *Arts* of the *East*; to prosecute research into the origin and dispersion of the various *Asiatic races* and *tribes* of mankind, were the objects, which the eloquent and learned President of the *Bengal Asiatic Society* proposed for its labours, and recommended to its attention. Three remarkable and essentially distinct classes of men, separated for ages, and distinguished for diversity of languages, who occupy Asia, the most extensive and interesting portion of the Earth, have been divided into the *Syrian*, or *Semitic*, the *Indo-Germanic*, and *Indo-Chinese* families of nations. With the second of these, the ancestors of the European nations, inclusive of the *Celtic*, the *German*, the *Sclavonian*, and *Pelasgian races*, had a common affinity,

* Another very needless remark of Anquetil's. Were this the place, it were easy to controvert his views. M.

sand sprang from the same family of nations, which gave birth, in upper Asia, to the ancient *Medes*, *Persians*, and *Hindoos*. *Sanskrit*, the sacred and highly refined language of the latter, has been comprehensively compared in Bopp's Grammar, with the *Zend*, *Greek*, *Latin*, *Lithuanian*, *Gothic*, and *German languages*; and while it has an intimate relation to the *Greek* and *Latin*, the two last are no less intimately connected with the *German*, the *Lithuanian*, and *Sclavonic* languages, belonging to the *Teutonic*, *Sarmatian* and *Sclavonic races*. The people of Northern Europe belong, as would appear, to the family of nations which spread itself from the banks of the Ganges to the shores of the Atlantic ocean; and it is an opinion determined, with much probability, that the institutions of the *Celtæ* were analogous to the system of the *Brahmins*, and that the *Gothic* or old *German* mythology was of eastern origin. The fables of the Northmen, preserved in the *Norse* tongue, and poetry of the *Eddas*, have much in common with those of India and Persia: and the *Volu-Spa*, or mystical portion of the poetic *Edda*, which gives an account of the creation of the universe, and of the gods and men inhabiting it, resembles in many parts the superstitions of the East. A late circular, from the Royal Society of Northern Antiquaries, which was published in our Journal, calls the attention of Orientalists to this interesting connexion of Asia and Europe; and doubtless a learned comparison of European with Asiatic antiquities, would make clear many obscure portions in the history of both the European and Asiatic races.

If the *Semitic* families of nations and of languages be less extensive in their range than the former, they are scarcely of less interest to the people of Europe; who through their medium, derived their earliest knowledge of the East, and principles of their faith. The *Aramæan language*, which represents the genuine *Syrian race*, was but a dialect of the *Arabic*; and is now almost lost, in the predominant influence of the latter, being only known, as a spoken language, in a few villages near Damascus. In my Journey through *Syria*, during the year 1833, I learned, at Damascus, that the *Syriac* is still spoken, in some of the villages north east of that city; and that the people of *Malula*, *Juba*, and *Bakha*, on the road from Damascus to *Yibrud*, (the Ancient *Jabruda*,) use it in colloquial intercourse. Some of the nations speaking this language appear to have had rather a *Chamite* than *Semitic origin*, and to have derived their lineage from Ham and Mizraim. Among the tribes de-

sended from the former, the most distinguished was that of the *Phœnicians*, inhabiting Tyre, Sidon, and the island of Arwad, and who, on the testimony of Herodotus and others, previous to their settlement on the Mediterranean coast, dwelt on the shores of the Red Sea and Arabia. In the Bible they are known by the name of *Canaanites*; a people who at once spread their commerce, letters, and mythology, to the remotest shores of the known world, during the times of the Greeks and Romans. Commerce the chief object of their pursuit, having introduced among them riches, they increased so greatly in numbers as to be obliged to seek, by emigration, the means of supporting their luxurious habits, which the narrow limits of their native country could not supply. In this manner the islands and maritime provinces of the *Mediterranean* were peopled by their colonies. If their language, of which the *Hebrew* and *Syriac* are representatives, be found to enter less extensively than *Sanskrit* into the *Indo-Germanic* family of languages, certain it is that the *Phœnician* gave its alphabet and letters to people now classed with the *Indo-Germanic* family of nations; such as the Greeks, the Persians, and Etruscans. The Egyptians too, who must be considered the most distinguished of the *Chamite* nations, which took the lead in science and in art, were partly indebted to the same source for their writing; to which the *Arāmæan* letters in Egypt still bear testimony. At a later period also the *Cushite tribes* of Arabia, claiming the same descent as the Egyptians, and who were subsequently intermixed with the *Semitic stock* of the *Hebrews*, and *Chaldeans* or *Chasdim*, derived the *Hamaiyaric letters* from the *Phœnician stock*.

The *Indo-Chinese* family of languages has been less extensively investigated and compared than those of the other two; but now that our extended relations, with the Chinese and Islands to the eastward, require a more intimate and accurate knowledge of the languages, literature, and customs of the people, labourers will not we hope be found wanting to give a new impulse to Oriental Literature in this direction, and make us acquainted with how much we are to believe as true of the *Chinese* and *Japanese* Histories; and with what right these nations claim a knowledge, in remote times, of Astronomy, and of practical arts, that were not known in Europe previous to the restoration of learning. Some of the earliest Arab authors, and in particular *Masudi*, assert that the Chinese, who occupied the country of *Soghd*, (Sogdiana,) previous to adopting the tenets of

the *Moghaniah*, (magicians or fire worshippers,) relative to opinions on light and darkness, or the dual principles of good and evil, were a truly ignorant people, and entertained opinions similar to the Turks. If the evidence however be admitted, that bottles of Chinese manufacture have been found, in the tombs at *Thebes*, by Sir J. G. Wilkinson, Rosellini, and others; and that such present inscriptions in that language intelligible to the Chinese scholar, Mr. Davis, the present Governor of Hongkong, we must conclude that Masudi's opinion is not warranted by fact, and that Egypt traded with China and India from the earliest times, though the tombs from which those bottles were obtained are of an uncertain date.*

Egypt, the natural boundary between Asia and Africa, peopled originally by a nation having a common origin with the *Cushites* of Arabia, becomes a band of union for our investigation into the arts of civilization and government, both in Asia and Europe, the progress of Geometry, Astronomy, Architecture, Agriculture, and Philosophy. We find that this interesting country, fourteen centuries before the birth of Christ, was well cultivated; possessed numerous cities; and had a regularly organized government, under a despotic monarch. The order of priests too were set apart from the rest of the people, and taught the transmigration of the soul; the latter were divided into castes; their deities were grouped into triads; the lotus was a common object of worship; and several other analogies existed, of which the Egyptian physiological structure, assimilating with that of the *Hindu*, is not the least remarkable. Relative to this country, the origin of the *Copts*, or *Chaphtorim* of the Bible, and of their language, in which the Hieroglyphics are written, is a subject not yet sufficiently investigated, and well deserving the attention of the learned. Wilkinson with truth remarks that Egypt was more Asiatic than African, and questions the soundness of the opinion that *Ethiopia*, or the land of *Cush*, was the parent of Egyptian science and civilization. Certainly the foreign appearance of nations, with which the Egyptians were at war, represented by sculp-

* The reader may consult Wilkinson's Ancient Egyptians, Vol. iii. p. 106, where he will find an account of these Chinese bottles. One of them was found by Rosellini in a previously unopened tomb of uncertain date, which he refers, from the style of the sculptures, to a Pharonic period not much later than the 18th dynasty: but while this opinion is purely conjectural there are many facts relative to Chinese history inducing a belief, that Chinese civilization cannot be dated, at the utmost, earlier than the origin of the Greek Bactrian Kingdom, about 250 years B. C.

tures in the tombs of the *Theban* Kings, at *Biban-al-Muluk* &c. fully justifies the correctness of his opinion. In the tomb of the great Rameses, the *Shuri*, or the Hebrew שׁוּר *Shihori** of Isaiah, Chap: XXIII. ver. 3, meaning the blacks, or Ethiopians, are represented with bows and spears. M. Champollion has rightly identified them, I think, with the *Bishari*, a nomadic tribe of *Nubia*, and of the same family with the *Bejas*; who were partly of Arabian origin, and possessed the western shores of the Red Sea from the earliest times. It will be a subject in philology of great interest to investigate the languages of these aboriginal people; and a comparison of them with the *Suhaili*, *Somali*, *Ghiz*, *Dankali*, and *Galla tongues*, is an important subject for research in Ethnography. In the transactions of our Geographical Society, published in May last, Lieutenant Rigby of this establishment has in part performed this creditable task; and collected materials for others to extend the subject, and arrive at more definite conclusions regarding the affinity of these several tribes. *Ethnography*, which has been cultivated by the *Germans* with much learning and success, has now become an essential and important part of *Geography*: and, as our English writers have been charged, with some justice, of neglecting this study, it behoves our future Geographers and Travellers to give that due attention to a subject, which has become so necessary a part of Geographical writing.

I have thus briefly sketched the existing relations of the three great families of nations; and may, at some future period, illustrate in detail the leading peculiarities of the languages, history, and literature, which characterize the principal subdivisions in each. But I might exhaust your patience, and would be trespassing on your time, were I at present to attempt more than to give a short outline of the principal subjects of investigation, which still claim attention; and regarding which further information is necessary to complete the natural and civil history of the several races. In this field of inquiry I may claim a privilege to commence with the *Semitic family*, from which we derived the earliest and most authentic record of the history of mankind, the books of the Old Testament, and whose languages are the *Hebrew*, the *Syriac*, the *Arabic*, the *Ethiopic*, and *Pehlvi*, or the *Semitic* dialect of the Persian.

* In Hebrew *Shihor*, which means blackness was applied as a designation of the *Nile*, and of the *blacks* too on its western bank: for in 1st Chronicles, Chap. XIII. ver. 5, David is said to have gathered all Israel from *Shihor* of Egypt even unto the entering of Hemath.

Hebrew.—The *Samaritan dialect* of this language, considered as the intermediate link of the *Chaldi* and *Syriac*; the direct medium, through which the apostate Jews, or Samaritans, diffused their opinions regarding the worship of the true God, mixed up with an idolatrous reverence for the gods of the Heathen, is a subject not yet fully investigated, and well worthy the attention of Biblical Scholars. The book of *Enoch*, or *Edris*, quoted by the Apostle St. Jude, * copies of which, in Ethiopic, Bruce obtained while in *Abyssinia*, was probably translated into *Samaritan*; and as such, according to Assemannus, contained the principal articles of belief professed by the *Sabeans of Southern Arabia*, search may be made, with some chance of discovering fragments of these books, among the Jews at *Aden*, *Zofar*, and *Sanaa*. One of the Ethiopic copies obtained by Bruce has been translated, into English, by Dr. Laurence Archbishop of Cashel, and one was presented to the library of the King of France. This very curious book is said to have been originally written in Hebrew, and translated into Greek by an Alexandrian Jew; of which a large fragment may be found in Kircher, and the Chronographia of Georgius Syncellus. † It records legends of the angels having descended from heaven, and produced giants from the daughters of men; and of their having instructed this race in the arts of war and luxury; giving a superstitious version of the same story as related in Genesis, chap: vi. v. 2. to 12. Matter, in his history of Gnosticisme, and its influence on the religious and philosophical sects in the first ages of Christianity, remarks that, in the second century of our era, Philon of Byblos, in Phœnicia, published *Sanchoniatho's Phœnician Cosmogony* and *Theogony*; teaching, like the books of Enoch, that mankind, falling from their state of original purity, came under the dominion of the passions and a spirit of discord; and that siderial spirits, by generative creation, descending from heaven underwent successive degrees of degradation. According to Mr. Turnour's *Bauddha Annals*, in the Pali language, ‡ the same story is somewhat differently related, among the Ceylon Buddhists. It is also

* Jude vss. 14, 15.

† Bruce's travels to the source of the *Nile*, octavo edition, Vol: II. p: 414; and Kircher's Oedip. Ægyp. Vol: ii. p: 69: also Dr. Laurence's translation into English, p: 181.

‡ Journal of the Bengal Asiatic Society for August 1838, p: 694: see also the article, on the Bauddha and Jaina religions in this Vol p. 107.

known in Nepal; regarding which Mr. B. H. Hodgson mentions his suspicion that the legend had been stolen from the Bible, and contains a confused idea of the Mosaic history. * It will be therefore of utility in tracing the history of the Arabian Jews, and those of India on the coast of Malabar, and in the territories of Bombay, to ascertain the nature of that connexion which subsisted between *Arabia* and *India* from the beginning of the Christian era. By this investigation we may be enabled to ascertain why the figure of *Buddha's foot*, which exists at the top of Adam's peak in the island of Ceylon, was identified as a type of our great ancestor, previous to the arrival of the Portuguese on the shores of India. In the fifth No. of our Journal, I remarked that the Mahomedan author Masudi, A. D. 943, makes mention of mount *Rahuon*, on which Adam descended when expelled from Paradise, adding that a race of Hindus, in the island of Ceylon, descended from Adam, derived their origin from the children of Cain; and that the analogy, between the traditions of the *Arabs* and *Bauddhas*, may probably be traced back to that period of early history, when both people were *Samaneans*; maintaining, according to the authority of the *Mefatih-el-olum*, that the world had no beginning, that souls transmigrated from one body to another, and that the earth is constantly declining.

Regarding the chance of obtaining Hebrew books from the Arabian Jews, it is not unworthy of remark, that Dr. Pickering of Boston, in America, and now amongst us a traveller, lately obtained, while at Aden, a Hebrew copy of the Pentateuch with an Arabic translation; but could not inform me whether such was the *Samaritan version*, as he had transmitted it without examination to America. An Arabic translation of the *Samaritan* text appears to have been made by *Abu-Said*, so late as A. D. 1070.

Syriac. The ancient dialect of *this*, which was common to Palestine, and now a dead language, except in the neighbourhood of *Damascus*, and among the *Nestorians* in the mountains of *Kurdistan* and the neighbourhood of *Orumiah*, is of great interest to every Christian Scholar. While the *Syrians themselves* maintain a doubtful opinion, that, in the time of Solomon, the Old Testament was translated into this language for the use of *Hiram*, king of Tyre, certain it is that our Saviour preach-

* Hodgson's Sketch of Buddhism, Transactions R. A. S. London, Vol. II. p. 212.

ed in it, and that the New Testament, in the time of *Abgar King of Edessa*, * was translated by *Thaddeus* into Syriac. An American Missionary Dr. Perkins, who resided eight years among the the Nestorians, and has published his account of them at Boston 1843, states that the present written character differs from the western, or *Jacobite Syriac*, and is a rounded form of the Estrangelo; adding that in their vernacular language there are twenty two consonants, united by seven vowels which are points, and not the Greek vowels inverted, as in ancient Syriac. † Such would indicate that this form of the *Syrian Alphabet* resembles, in many respects, the *Himaiyaric character* of *Southern Arabia*, in which some genuine Nestorian letters are found. In connexion with the Syriac dialect and character, it will be an interesting subject of research to inquire into the origin of the *Palmyrine writing*; with which that of the *Sassanian* inscriptions at *Hojiabad* and *Nakshi Rustam*, in Persia, have a close affinity. The inscriptions too on the Bactrian coins, at *Shah-Baz Ghiri*, in the *Yeusaf Zai country* and in the *Topes of the Panjab*, seem to have derived their alphabet from the same source. To trace the gradual developement of this character and to follow it into the countries of *Bactria* and *Tartary*, where it was applied to languages of the *Indo-Germanic family*, will enable us to make clear many obscure points both in Chinese and Indian history. One more head of this subject deserves the attention of the learned, namely, the investigation of the true dates when the Syrian Christians settled in Malabar; or found their way into China and Tartary, where under the name of *Aigures*, they gave letters and literature to the people of *Mongolia*.

The settlement of the Syrian Christians, on the coast of Malabar, and the period of its taking place, have been long subjects of comment and dispute. In number xxx of the Madras Journal of Literature and Science, published in June last, there are fac-similes of the engraved copperplates, possessed by the *Jews* and *Syrian Christians*, who were granted certain privileges by the *Hindu* princes of *Chera*. Various opinions

* The country of *Osrhoene* in *Mesopotamia*, then under the Parthian Government, was, about A. D. 114 sold by *Arsaces Pacorus* to one named *Abgar*, who, according to *Suidas*, took upon himself the title of king.

† Address to the American Oriental Society, by John Pickering Esquire, of Boston, 1842 p. 30.

have been formed regarding the supposed antiquity of these documents, which are written in ancient *Tamul*. The Jewish tables, which are the oldest of them, consist of two copper plates, written on three sides, and are now in possession of Rabbi Samuel at Cochin, who has also an old *Hebrew* translation of the contents. They are dated in the 36th year against the second cycle, or cycler period of sixty years, which the Arabs call *Tarikh-Zaki*, and *Tarikh-al-Huakma*, or era of the philosophers; dated as would appear on the revolutions of the planet Saturn, and commencing its new year from the appearance of the first new moon after the winter solstice; which was the common mode of reckoning among the *Chaldeans*, *Egyptians*, *Chinese*, and *Indians*.* The reigning prince of Malabar, who granted this document and had the title of *Peru-mal*, was named *Sri Bhaskara Ravi Varma*; and as the document no where recognizes the existence of the *Brahmanical hierarchy*, the country at that time seems to have been under sovereigns of the *Bauddha faith*. In Asoka's inscription at *Girnar*, it is mentioned under the name of *Piru*,† and associated with *Chola*. While some have dated this document as early as the 31st year of the Christian era, others are disposed to give it no higher antiquity than A. D. 825.

The other documents, in possession of the *Syrian Christians*, consist of six copper-plates, four of which are written in *Tamul*, followed by the names of witnesses attesting to the truth of the grants; and whose signatures are written in the alphabets of three languages; of which the first is *Kufic*, the second apparently *Nestorian Syriac*, and the last *Hebrew*. The well ascertained origin of the *Kufic* form of Arabic, and its existence on these copper-plate grants to the *Syrian Christians*, reduces the probability of the preceding Jewish grant having been given in the third century of our era: as both the Jewish and Christian grants seem nearly of cotemporary origin. The subject however still merits attention as one not definitely settled.

Arabic. The origin of the *Hamaiyaric character*, or the writing called *Al-Musnad*, is a subject still open for the investigation of the curious. Though Fresnel in the Journal Asiatique, ‡ and the Baron Mac

* See Chevalier De Paravey, sur l' identite des cycles Arabes; Indiens et Chinois, applique's aux jours, aux annees et aux eres diverses.

† Mr. Prinsep's correspondence in page 26 of this volume.

‡ Troisieme serie Tome II, III and IV.

Guckin De Slane in his translation of *Ibn-Khallikhan's* Biographical Dictionary have usefully combined some of the scattered facts, relative to the state of the Arabs during the times of Paganism, and of their literature after the time of Islamism, the subject has not yet received that degree of attention which it deserves. After the decay of the Roman empire and the destruction of the Alexandrine library by *Amru*, the General of the *Khalif Omar*, the knowledge which the Greeks and Romans possessed of Philosophy, Mathematics, Medicine, Natural history, Astronomy and Geography was transferred to the Arabs, through the medium of translations, by the Greeks of *Harran*, and we may hope that the zeal and learning of European scholars will yet enlighten us relative to these dark periods of history, and shew how far the Muslims contributed additions to the two last branches of knowledge.

Busra, *Kufa*, and *Baghdad* attained great pre-eminence for learning; and in their several schools the study of Grammar, Philology, Genealogy, and History was carried out with great exactness. The dialects spoken by the different Arab tribes of the desert became the special object of investigation, and served as the ground work of copious dictionaries of the Arabic language. In aritlmetical calculation the Arabs employed certain letters of the alphabet with a numerical value, but subsequently adopted the Indian ciphers. The Algebra of *Mahomed-bin-Musa* has been translated into English by Professor Rosen, who is of opinion that the author was conversant with *Hindu science*, and though he be the first Mahomedan who wrote on arithmetic, he was not the inventor of the art. Before the accession of the *Khalif al Mamun*, *Mahomed bin-Ibrahim al Fazari* had translated, in Hej: 156, A. D. 773, the work of an Indian Astronomer, called the *Sindhind*, or astronomical tables. Connected with Arabia and its language, an investigation into the comparative Geography of this Peninsula and an account of its Geology and natural history are still desiderata.

Ethiopic. Mons. D. Abbadie, in the Journal Asiatique of Paris, for July and August 1843, has enumerated twenty eight dialects of this language, which are partly of *Semitic* and partly of *Chamitic origin*.* The

* In No. 911 of the Athæneum, for April 1845, the same gentleman has addressed a letter, to the Rev. G. C. Renouard, foreign secretary of the Royal Geographical Society, on the subject of the Ethiopian family of languages, and as this is one of the undetermined subjects in *Ethnography*, and of great interest in the history of mankind, the letter will be found extracted in the present number of the Journal, under the head of *Literary* and *Scientific* notices.—

Ghiz is a very pure dialect of the ancient *Arabic*, and is written, from left to right, in a modern character of the *Hamaiyaric*, consisting of twenty six consonants, varied in sound by seven vowels: to which were added seven other letters, at the period when the *Ahnaric dialect* became incorporated with the more primitive form of this language.

In both sacred and profane history *Ethiopia* is frequently mentioned in conjunction with Egypt, signifying the *Thebaid*, or *Upper Egypt*, and is designated, on the Egyptian monuments, the land of *Cush*; under which title, Isaiah, Ch: XLV. ver: 14, associates it with the country of the *Sabeans*, or people of Southern Arabia. The Ethiopians claimed even superior antiquity to the Egyptians, as their progenitor *Cush*, the son of *Ham*, was elder than *Mizraim*, from whom were descended the Egyptians. Regarding the origin of the Ethiopians, the most probable opinion now entertained is that the Ethiopians, beyond the parallel of *Syéne*, or *Asouan*, were *Copts* less advanced in civilization than the Egyptians; and that under *Sabbacon*, or the *So* * of Scripture, who entered into a treaty with *Hosea* king of Israel, and reigned from B. C. 769 to 729, the *Arabs*, or *Cushites*, migrated from the kingdom of *Midian* into the southern part of Arabia, and western shores of the Red Sea or Ethiopia. Juba, who wrote the History of Arabia B. C. 30, says that *Ethiopia* was then peopled by Arabs, who, under the name of *Blemmye*, were led on by the generals of Candace, queen of Meroe, against the Roman cohorts at Elephantine, Syene, and Phylæ, during the reign of Augustus Cæsar; and were driven back, as far as Premnis in Nubia, by an army of Romans and Greeks commanded by Ælius Gallus. The Jews had for a long time, and in great numbers, been settled among them, and soon after translated the Holy Scriptures into the Ethiopic, of which the *Ghiz* has many words in common with the *Arabic* spoken by the barbarous inhabitants of *Mahrah*, possessing the mountainous district of Southern Arabia near *Harik*, *Morbat*, and *Zofar*. This idiom, termed by Mour. Fresnel † the *Ekhkili language*, approximates more nearly to the *Hebrew* and *Syriac* than to the *Arabic*; and appears to have prevailed in the Islands called *Curia Muria*, and in *Socotra*. Herodotus, in Polymnia 70, makes mention both of the eastern and western Ethiopians, or of the *Asiatic* and *African* tribes of this people. The former, who were of Arabic origin,

* 2d. Kings, xvii 4.

† Noveau Journal Asiatique Paris.

served with the Indians in the expedition of Xerxes to Greece; were armed in all respects like the latter, and had straight hair. They wore on their heads, however, the skins of horse's heads, on which the manes and ears were left; and are without doubt the *Asva-Mukhas* of the *Hindus*, or the horse-faced people of the *Haya-sirsas*, whom Major Rennel has correctly placed in *Kej-Mekran*, or the Persian province near the sea, west of the Indus. They were the people of *Hazr*, or the *Oritæ* of the Greeks, and partly of Arabian descent: of whom the *Beluchis* and *Brahuis*, are the probable remains, though the languages of these two tribes now shew a nearer affinity to the *Indo-Germanic family* than to the *Semitic*, while they themselves proudly claim a Syrian or Arabic descent.

The Philological branch of Ethnography, on the subject of the Ethiopians, appears to have been pursued with considerable success by Monr. D'Abbadie: and as our Society, so early as 1812, obtained comparative lists of dialects in use on the eastern coast of *Africa*, namely the *Suhaili*, *Sumali*, and *Galla-tongues*, it is my intention to add to those vocabularies of the *Kunuz* and *Bisharia languages*, and to publish them in an early number of the Society's Journal. Others will no doubt assist us in collecting materials for determining this interesting question relative to the origin of the *Ethiopians*: and the Rev. Mr. Isenberg, who is now a resident amongst us, has already printed a Grammar and Dictionary of the *Amhara* language. He has also compiled and printed a Vocabulary of the Danakil dialect; and the Rev. Mr. Krapf has collected a Vocabulary of the Galla tongue, which has been translated from the German, into English, and published by Mr. Isenberg.

Captain Harris, in his late work on this country, has appended a catalogue of extant manuscripts in the *Ethiopic* and *Amharic tongues*; of which the *Sena Aihud*, or history of the Jews in connexion with the history of other ancient nations; and the *Kibra Nijashi*, or the history of the *Kings of Axum*, would repay the labour of translation. The *Didaskalia*, or institutions of the Abyssinian Church, has been already translated into English and published by the Oriental translation fund.

Pehlvi. This ancient form of the Persian, which is of *Chaldaic* or *Syriac origin*, seems to be an ancient dialect spoken in *Khuzistan* and *Pars*, the two western provinces of Persia; which, previous to the rise of the Medo-Persian kingdom, formed the dominions of the *Elamites* of the Bible, who were of *Semitic origin*. It gained an ascendancy, pro-

boldly, during the period of the Parthian dominion, and reign of Artabanus III. brother of Vonones II. with whom commenced a new line of Parthian kings, descended from the Governors of *Media*. In Avdall's history of Armenia, the then reigning family is divided into two branches of *Pehlevis*, namely the *Sureni Pehlavis*, or western, and the *Karani Pehlavis*, or eastern. It appears from Vaillant and Josephus that *Media*, the modern *Azerbijan*, came to this second dynasty of Parthian Princes by their father Vonones II. brother in law to *Bardanes*, who belonged to the family of western *Pehlevis*. According to Tacitus * Vologeses the I. by consent of his brothers Pacorus and Tiridates, succeeded to the throne of the *Parthian kingdom*, resigning to his brother Pacorus the chieftainship of *Media*, which his father Vonones held in right of his father's brother Artabanus III. The coins found in *Bactria* and *Kabul*, bearing on one side, in Greek, the names of *Palirises* and sometimes *Palirus*, with the inscription *Balhara putasa Dhamisa Bala Farnasa*, published by Wilson and others, belong to this Pacorus, governor of *Media*, and date from the era of the Arsacides 367, A. D. 52.

While it may be shewn that the alphabet of the Bactrian Pali inscriptions, and of the more extensive ones at *Shah Baz Ghari*, in the Yousaf Zai country, are of *Semitic* origin, and kindred with the Sassanian writing on the monuments of Elymais, or Persepolis, Professor C. Lassen has traced with much learning and ingenuity the affinity between the language of these inscriptions and that of the *Prakrit* in the Indian dramas.† It seems highly probable that the *Sureni Pehlavis*, or western Persians, spoke in ancient times a dialect of the Syro-Arabian stock; but that the *Karani Pehlavis*, or inhabitants of eastern Persia, made use of a language that was intermediate between that of the Indians and Persians, and had a near affinity to the languages spoken in the *Kohistan*, or *Highlands* north of Kabul, of which the *Lughmani*, *Pashai*, *Kashkari*, and *Kafiri* dialects are the yet existing remains. The Parthians, according to Justin,‡ spoke a mixed language between the *Scythian* and the *Median*; and the Parapamisadæ of the Greeks, and Parthians of a mixed Persian origin, who had the name of *Karani*, may have obtained this appellation from being of a mixed breed: for we are informed, in the travels of Marco

* Tacit Annal, lib: c: 44.

† Journal of the Bengal Asiatic Society for 1840 p. 380.

‡ Justin, lib: 41.

Polo,* that the Choghtai Tartars of *Nikodar Oghlan*, the son of *Hulaku*, mixing with the dark Indian women, produced a race to whom the appellation of *Karaunas* was given, signifying in the language of the country a mixed people. In classifying the dialects of the Persian language, there are good grounds for assigning a Semitic origin to the Pehlvi, or language of the Elymeans; who were not, according to Strabo,† reduced to obedience by the Parthians, until B. C. 162: when Arsaces Mithridates I. the cotemporary of the Bactrian Eucradites, also added Media to his dominions. This also is the view taken by the learned author of the *Ferhang Jehangiri*, ‡ who enumerates seven dialects of the Persian; four of which the Hervi, Seyzi, Zaweli, and Soghdi had become obsolete, or were not used in composing historical and poetical works; while the Parsi, Deri, and Pehlvi were the current languages of the country. The latter was that which was spoken on the Pehlu, or Arabian and Chaldean border; and prevailed in Khuzistan, Kermanshah, and Persian Irak, § while Parsi was a collateral language spoken in the province of Pars, or Persia Proper.

The family of nations, extending from the Ganges to the British Islands, and speaking languages of a cognate origin, has been called collectively *Indo Germanic:* but has been divided into several branches, denominated the *Arian, German, Sarmatian,* and *Selavonic*. The old Persian words *Airya* and *Airyana* have been used to designate the region to which the Hindus and Greeks extended the appellation of Aria or Ariana; and Mons. Burnouf explains the name to signify "l'Arie dans sa plus grande etendue, c'est a'dire le pays habité par la race des Arya, ou des hommes nobles."—The ancient Medes, according to Herodotus, called themselves Arii: and Aryavarta, or the Holy Land of the Brahmins, before they spread themselves into Southern India, was the country sit-

* Marsden's Edition of Marco Polo, London, p: 57.

† Lib: 16.

‡ The excellent Persian Dictionary written by Jemal-u-din Hussin Ibn Fakhr-u-din Hasan Anju.

§ The author of the Ferhang Jehangiri calls it the border line from Ispahan to Dinavar; thus including the provinces of Persian Irak and Kirmanshah: in which latter district are the remarkable *Cuneiform Inscriptions* of *Behistun*, which have been lately deciphered by Major Rawlinson. These inscriptions are written in three dialects, which must be Parsi, Zend, and Pehlvi, and are said to contain interesting details relative to the campaigns of Darius Hystaspes.

sited between the Himalaya and Vindhya mountains. The principal stems therefore of the Arian race consist of the Hindus, or Indians east of the Indus, and the Medo-Persians, west of this river. The Afighans, the Brahuis and Beluchis, the Armenians, Kurds, and the Ossetes inhabiting the Caucasus, near the sources of the river Terek, belonged to the latter; and though the former people be now limited by the Ganges eastward and the Indus on the west, yet, in the time of Arrian's Periplus and of Ptolemy the geographer,* their cities Minagara in Sindh, Ozene or Ujain in Malwa, Tiagura and Nasica in the Deklian, were esteemed parts of Indo Scythia; while mixed tribes of Indians speaking Prakrits, or dialects of the Sanskrit language, inhabited the Kohistan and country of Kabul. The mountainous country, immediately west of the Indus, called by Diodorus Siculus Cossea, or the Caucasus, obtained its name from the Khasas or Kas, mentioned in the Kerna Parva of the Mahabarat, and by the Emperor Baber in his memoirs. Hindu and Persian tradition concurs in recognizing the tribes inhabiting this quarter, and even those towards the sources of the Oxus, as members of the Indian family;† while a Philological examination of the dialects now spoken by them will afford strong Ethnological proof that the aboriginal people of Laghman, Kashker, and Kaferistan, belonged to the Indo-Persian stock, though Scythian in their manners. They are known to the Greeks under the name of the Indo-Scythians, and are called collectively, by the Hindus, Haya-hayas, or individually Gandharas and Bhalikas: and as many pure Maharatha words are found in the Laghmani and Pashai dialects, and were primitive parts of these languages, such seem to establish the correctness of an opinion entertained by many, that the Maharathas were of a foreign origin and descended from Nausherwan and the Persians.‡ This is a subject of much interest, and well worthy of further and more accurate investigation than it has yet received; and the labour of tracing the History of the Indo-Scythian tribes, that, under the name of *Sakas*, or *Saca*, overturned the Greek kingdom of Bactria B. C. 126, and pushed their conquests into India, will be attended with much new light on the subject of Indian History, and is calculated to dispel much of the darkness which envelopes systems of Hindu mythology.

* Ptolemæi Geographiæ; Lib: vii.

† See Wilson's Ariana Antiqua, p: 125.

‡ Wilford's Essay on Vicramaditya and Salivahana, in Asiatic Researches; Vol: ix p: 234. Quart: edition.

The Saca, according to Ptolemy, were a great people, situated between *Cascia* or *Kashkar* and *Bylta* or *Little Tibet*; but the name was a general term used, in ancient Persia, for all Scythians situated eastward of the Caspian Sea. The Asii, Tochari, Pasiani, and Sacarauli, who overturned the Greek kingdom of Bactria B. C. 126, were but branches of the same stem; and by Ma-twan-lin and other Chinese authors, who have written on the subject of India, are called the Great Yue-che or Indo-Scythians. Procopius calls them Enthalites; and Cosmas Indicopleustes, visiting India A. D. 535, notices them under the name of Hunni. Arabic geographers and historians name them Hayathelites, or Hayatolas; and place them, at the sources of the Oxus, in the districts of Khuttan and Cheganian.—During the quarrels of Firuz and Hormuz sons of Behram VI. the Hayathelites assisted the former in recovering his right to the Persian throne; and not long after the period when they are mentioned, by Cosmas Indicopleustes, under the appellations of White Huns, their country was conquered by Nausherwan the Great, of Persia, who put to death their king Akhshawan, and carried into Persia the *Kalila Damna*, which was soon after translated into Pehlvi from the original Sanskrit of the Pancha Tantra. This is given on the authority of the Arabic author Masudi; who in his account of the Sassanian kings, states that the Haiyatelas were the same with the Soghdi, living between Bokhara and Samarkand.*

Persian. The country named from this language, which was originally the dialect of Pars, or Persia Proper, extends from the banks of the river Jihun, or Oxus on the east, to the Euphrates westward, and from Bab-al-Abwab, or Derband, on the north, to the sea of Oman or the Persian Gulf, on the south. Several tribes however, whose primitive tongue appears to have been Persian, are situated beyond these limits, and Klaproth † has shewn that while the Nomadic tribes of Bokhara, Khoten, and Khiva must be reckoned as branches of the Turkish stem, the inhabitants of towns, called *Sarti*, or *Tajiks*, are of Persian origin. The Parthians and Arsacides, who had the national denomination of *Dahi* or Dajik, and were partly of Scythian origin, imparted this name to their Persian subjects; and, though it was disavowed by the Persian people, it was afterwards applied to them, in the sense of barbarian, by all the tribes of Upper

* See Masudi's Meadows of gold and Mines of jewels, written in Arabic and begun in A. D. 943; also Histoire Generale des Huns, par M. Deguignes Tome Premier, seconde partie, p. 325.

† Journal Asiatique; No. 9.

Asia, that subsequently overran Persia. The establishment of the *Tajiks* in Sogdiana, and other countries on the borders of Persia, where the original Nomadic population belonged to the *Saca*, or eastern Scythians, appears to have been effected during the reigns of several Persian kings: who were probably anxious to form agricultural colonies, in these countries, from among their Persian subjects; who had learned the luxury of fixed habitations, and were capable of teaching mechanical arts to the Nomades, and of weaning them from their wandering manner of life.

It is not certain that the dialects of Persia Proper and of Media were the same, but it is now generally allowed that they were cognate tongues, and that the latter, which was the primitive language of Persia, had a close connexion with dialects of the Sanskrit family. The now obsolete *Hervi*, or dialect spoken in the province of *Herat*, or Aria, may have been the last original tongue from which the ancient Persic was formed, after the rise of the Medo-Persian kingdom, but continental Philologists are disposed to regard the Zend as the Vernacular idiom of Media and the northern parts of the Persian Empire. The whole of the ancient Media included, besides Azerbijan, the provinces of Shirvan and Gilan; and Professor Rask supposes, with great probability, that the Zend was the old popular language, at least of a great part of Iran,* and not merely a sacred dialect introduced for religious purposes. English Philologists however have been disposed to consider the *Zend* as a dialect of Sanskrit, introduced from India, for religious purposes, and never spoken in any part of Persia. The testimony of so ancient an author as Masudi, that the book called *Asta* and its commentary the *Pa-Zend* were in existence in his time, establishes the comparative antiquity of the *Zend-Avasta*, and that the language of it is not a forgery of modern times. The grammatical structure of the *Zend*, and its system of inflexion correspond with the Sanskrit, but in some instances approach nearer to the Phrygian class of languages, (that is to say, Greek and Latin, with their different dialects,) in others it is quite peculiar, which seems to show that it is a different language, to be arranged between the Sanskrit and Greek: and it is therefore more natural to conclude with Rask that Sanskrit was introduced, as a foreign language into India, from *Aria* or *Iran*, in preference to the supposition that it was brought from India into Persia. Masudi says that *Zerdusht* or Zoroaster, a native of Azerbijan, and son

* Transactions of the Royal Asiatic Society, Vol. III p. 533.

of Astiman, composed the book called *Asto* in a language that no one could understand, and afterwards wrote a commentary on it called the Zend: the commentary on which, in another language, was called *Pa-Zend*, meaning what was written interlined with the Zend, the ancient Persian language. This commentary was as appears the Pehlvi version, which, as Burnouf in his commentary on the *Yaçna*, remarks, was composed in an age unknown to us, but esteemed of equal value with that of the original Zend text. The author of the *Ferhang Jehangiri* notices the Zend and Pa-Zend, but does not mention the former among the other dialects of Iran. The Deri was, according to some authorities, spoken by the inhabitants of Balkh, Bamian, Meru-Shahjahan, Bokhara, and the Derahs or valleys at the source of the Oxus; while by others it was called the court language, or a highly polished dialect, used vernacularly in the *Deri-Shah*, or Royal court: where, about the end of the fourth century of our era, or A. D. 351, it was introduced by Beharam-gaur in supercession of the Pehlvi, or language of the country. Ibn Haukal in his geography, called *Masalik-wa-Mamalik*, of which the original was written A. D. 858, only makes mention of two languages besides the *Arabic* spoken in Persia, namely the *Pehlvi* and *Parsi*; the former of which was used in writings, but required, even in his time a commentary, as not generally understood. The Parsi, of which the dialects in various parts of the country differed somewhat, was then the vernacular language of Persia, though discountenanced in the transactions of government and of public affairs. It was, as already noticed, the language of the province of Pars; or Persia Proper, and contemptuously styled the Ajamian (barbaric) tongue, but during the tenth century, under the patronage of Mahmud of Ghaznah, it was restored to its ancient honor by the celebrity of Firdausi, when being mixed up with many Arabic terms and words of Semitic origin, it became the now current language called Persian. Many translations of Historical and Geographical works were made into this language from the Arabic; and many of them hitherto little known are of much interest, and would repay the labour of translation into the European languages. Those of them composed during the reigns of the Perso-Moghal sovereigns, the descendants of Jenghis Khan, deserve particular notice. From among these the *Jama-ls-Tawarikh*, a history of the Moghals by Rashid-ad-din, and the *Matla-as-Sadein*, a history of Sultan Shah Rokh's reign will be acceptable additions, when translated, to the history of the east.

Sanskrit. It is now generally admitted by Philologists, that the several dialects spoken in India belong to two great families, the Northern and Southern; or that of India proper, between the Himalaya and Vindya mountains; and that of the Dekhan, south of the Nermada river. The former called the five *Gours*, or the *Saraswati*, *Kanyacwlja*, *Bengali*, *Tirhutiya*, and *Uriya*, are chiefly derived from Sanskrit, which was introduced into India previous to their origin, and was the precursor of civilization in the countries, where these *Prakrits*, or Provincial dialects of the Sanskrit, are now spoken. These, with the Gujarati and Maharatha languages, are of the Arian family, and intimately connected in their affinities with the Zend, or primitive dialect of the Medo-Persian. But the Southern family of languages, including the *Tamul*, *Telugu*, *Karnataka*, and *Malayalma*, agree exactly, in grammatical structure, with the Tartar dialects of Northern and Central Asia, and are largely composed of words, that are not of Sanskrit origin. A great proportion, however, of these languages is Sanskrit; which, as in the North, was incorporated with them by means of civilization and the progress of literary composition. Mr. Ellis, in his dissertation on *Telugu*, prefixed to Campbell's grammar of this language, observes, that neither *Tamul* nor *Telugu*, nor any of their cognate dialects are derivations from the Sanskrit; but that they form a distinct family of languages, with which the Sanskrit has, in latter times especially, intermixed, but with which it has no radical connexion.* The language of the mountaineers of Rajmahal abounds in terms that are common to *Tamul* and *Telugu*; and throughout India, in the hills of Rajpatana, the districts of the Bhills on either bank of the Nermada river, the territory of Gondwana, and the Garrow hills, are tribes of people who, both in manners and in language, are altogether different from the civilized Indians of an Arian stock, speaking languages of the Sanskrit family.

The study of Sanskrit literature, and the principles of etymological affinity which connect this highly learned language with the languages of Greece and Rome, as well as those of the more modern European nations, have contributed greatly to elucidate the history of all languages, and by means of them to make more certain the history of the various tribes of mankind. The history also of philosophy and science has been largely indebted for illustration to the same source; and the cultivation of San-

* Mackenzie Collection, preface p. xxix.

skrit literature is particularly commended to the attention of our countrymen, by their employment and position in this country. Much in this department has been already effected by Jones, Colebrooke, Wilkins, Wilford, Wilson, and others; but a critical examination of the various dialects spoken in India is yet a desideratum; though the labours of Bopp, Lassen, and other continental philologists, have already accumulated materials of great value, which will be highly useful to all future investigators. The Pali language, which is certainly a derivative from the Sanskrit, has received important elucidation, in the "Essai sur le Pali, par E. Burnouf et Chr. Lassen," and all the provincial dialects, or *Prakrits* in other parts of India, are learnedly commented on in Lassen's "Institutiones Linguæ Præcritice." The Ethnology of the several wild tribes and mountaineers of India has, hitherto, been too imperfectly investigated, to admit of implicit confidence being placed in the opinions formed relative to the affinity that these tribes bear to each other; and here there is a wide field still open to the inquiries of our Indian scholars. These tribes seem to be the remains of the Indian aborigines; and their present condition, languages, religion, and customs, particularly merit investigation, and will contribute greatly to elucidate the ancient history of this country. Translations of the cave inscriptions, that are found in the various parts of the Dekhan, and of the books of the Jainas written in the same dialect, will be of great interest to continental scholars; and contribute to illustrate the connexion that exists between the religious system of the Bauddhas and Brahmins, and the principles of belief professed by the Jaina sectaries. The language in which these books and inscriptions are written, is that which has been styled *Prakrita* "*par excellence*," and is allowed, by all Prakrit grammarians, to have been the original language of Maharashtra, or country of the Mahrathas. It is an immediate derivative from the Sanskrit, and intermediate between the latter and Magadhi, or language of Behar, which is the same as the Pali, the sacred language of the Bauddhas.*

There are many other subjects connected with India, but yet imperfectly investigated, which are well worthy the attention of members of our Society, and Oriental investigators generally; and of which those, not least important, are the Statistics, Geology, Botany, Zoology, and comparative Geography, (Hindu and Mahomedan,) of the several provinces and districts. Those of our own Presidency will of course chiefly merit our attention.

* See Lassen's Institutiones Linguæ Præcriticæ, p. 12 and 60.

Pali. This which was the official language of the Bauddha dynasties, once existing in India, and is now the depository of Bauddha religious literature in Ceylon, and the countries beyond the Ganges, has lately attracted much attention from Orientalists, and promises to become daily a subject of greater interest, on account of its connexion with Sanskrit and the history of the Bauddha religion. It is a contested point whether the Pali or Sanskrit be the more ancient language of India; but those who have supported the superior antiquity of the former, seem to have been imperfectly acquainted with the grammatical principles and affinities of the two languages, which have been investigated with great learning by Burnouf, Lassen, and others; whose opinions are opposed to this view of the subject, and claim deference from their profoundness and learning. The Pali grammar and vocabulary of this language, published in Ceylon, by the Rev. Mr. Clough, the "Essai sur le Pali," a Grammar and Dictionary of it lately published at Paris, and the late Mr. Turnour's translation of the Mahawanso, supply abundant materials for the study of this learned language, in which are embodied several metaphysical tracts, fabulous or real biographies of the several patriarchs who succeeded *Buddha*, and systems of Cosmogony and Mythology.

There are plausible grounds for a belief that this language, though a *derivative* from *Sanskrit*, was originally a *western dialect*, spoken by the *Sakya* race inhabiting *Sindh*, *Surashtra*, and *Gujarat*; and that when they emigrated, from the northwest, to *Kapilavastu*, and the *Gangetic* province of *Magadha*, this dialect, called orginally the *Sindhic* language, obtained the name of *Magadhi*, and prevailed along with the religion, which was promulgated through its means, from *Magadha* to the shores of *Kalinga* and island of Ceylon. "In the north-west it approached nearest to the Sanskrit and diverged from it in *Magadha* and *Kalinga*: but was in both places essentially what is now called *Pali*, a word supposed to be derived from पल्लि *palli*, a village, as we should now a days distinguish *gaonwari*, village, bourish, from *urdu* the language of the coert." * In the great inscription from the Bauddha caves of Nasik, it is called *Gaa-eacha*, or the vernacular language of the cowherds and pastoral tribes of this quarter: and it is confirmatory of the truth of Mr. Prinsep's opinion that the modern dialect of *Sindh*, and

* Prinsep, on the Girnar and Dhauli inscriptions, in the Journal of the Bengal Asiatic Society; Vol: vii, p: 280.

Bhashas, or dialects of western India, present striking analogies to the *Pali*, in the removal of *r* from original *Sanskrit* words, and in the modification of the auxiliary verbs: the admission of which into *Pali* conjugations is considered, by Monr. Burnouf, as a proof of the language being more modern than Sanskrit.* The *Pali* and *Zend* are derivatives of nearly the same grade from the Sanskrit stock. If the *Magas*, mentioned by the *Puranikas*, came originally, as asserted by Wilford, from the *Dwipa* of *Saka*, and gave name to the province of *Magadha*, were the same as the *Sakas* or *Seres*, noticed in previous pages, the fact of their identity tends to confirm the opinion that *Pali*, though matured and systematized as a language in India, had its origin like Sanskrit westward of the Indus, and in the districts of the Indian Caucasus.† In the Bhavishya Purana, these Magas,‡ are described as silent worshippers of the sun; and are associated by the compiler of this Purana with the fire-worshippers of Iran under the general term of *Mogh*.§ This identification is quite in accordance with what is known, from the Geography of Ptolemy, that a race of foreigners, denominated *Sadinoi*, from the Sanskrit *Sadhana* lords or masters, inhabited the mountains of the Dekhan, and were otherwise named the *Tabasmi-magi*: whose capital was *Basawasi*; of which the remains are yet to be seen southward of the Dharwar Collectorate, near the sources of the Wardha river, that rises in the Bednore district. From an inscription in the Maga language found at Islamabad, and dated the 14th Magha, in the Samvat year 904, or A. D. 848, they appear to have been Bauddhas.‖ They are also mentioned in an inscription, written with white paint, in one of the side caves at Karli, commencing thus—*Sidharaka vasu thapanasa Sri parma vacha ravisarisa thakura magana pati ganaya—devasavitri*: which may be translated, *The supreme word of the sun-born lord of the Magas of Thakara to the demigods during the established year of Sidhara*: O

* Burnouf on the Pali in Balbi's Introduction al' Atlas Ethnographique du Globe.

† Lassen says, Ut dicam, quod sentiam, uno seculo commodo orta esse possunt discrimina, quibus Palica a Prakrita distinguatur. Cohæret autem Palica lingua cum emigratione Buddhaicæ doctrinæ in terras meridionales, ipsa autem in India sine ullo dubio nata est. Institutiones Linguæ Pracriticæ, p: 69.

‡ The Pali word *Magga* signifies *fire*.

§ See preface to Wilson's translation of the Vishnu Purana, p: 40.

‖ Asiatic Researches; Vol: II, p: 383.

divine sun! From this it would appear that if the Magus were followers of Buddha; they were at least heretical disciples of this faith, since they *adored the sun and fire*: but this union of Buddhism with the principles and practice of the Sabeans and fire-worshippers is manifested by the rare inscriptions of the Dekhan; written in a *Prakrit* which, according to all the grammarians, was the vernacular language of *Maharashtra*, and is not materially different from the Pali, though intermediate between the latter and the Sanskrit.* The comparative antiquity and origin of *Sanskrit* and of *Pali* grammar is a subject yet open for a more perfect investigation than it has hitherto received; and facts seem to warrant the conclusion that the grammatical system of both languages is of nearly cotemporary origin, as the literature of Ceylon recognises *Kachchayano*, or the *Katyayana* of the Brahmans, as the author of the earliest Pali grammar; from which the oldest compiled version, called the *Rupasidhi*, was composed in the *Dekhan*.†

After being widely spread over India, prior to the birth of Jesus Christ, the Pali became a dead language, like the *Sanskrit*, and is now the learned medium through which we must obtain access to the historical and religious literature of Ceylon, and of the countries eastward of the Ganges, now comprehended under the name of Indo-China. The language in which the texts of the Bauddha books of China are written, is named *fan* by the Chinese, and *hendhek*, or Indian, by the Moghals; but it is yet a question whether this appellation, which only indicates that the dialect, in which they are written, is Indian, be applicable to *Sanskrit* or *Pali*.—Mons. Burnouf says that *fan* is a Chinese translation for *Brahma*, and that consequently the *fan* language, or that of *Brahma*, must be the *Sanskrit*; but it is doubtful whether the name be not equally applicable to the *Pali*.

Other Arian languages.—The vernacular dialects of the Afghans, the Brahuis and Beluchis, the Armenians, Kurds, and Ossetes, belong, as already noticed to the Arian family; and only require to be here partially mentioned, though there be some points in their Philological history yet uncertain and calling for further investigation.

The Afghans call themselves *Pushtanah*, and their language *Pushtu*; which is a dialect cognate with the Zend, and strongly evidences the im-

* Lassen's Institutiones Linguæ Pracriticæ.

† Mr. Turnour's Introduction to his translation of the Mahawanso.

mediate relation of this people to the Iranian or Persian branches; but there is no specification of their existence as a distinct race at any very remote period, as Ibn Haukal, about the middle of the ninth century of our era, notices the districts of their country under the names of *Rukhej Khilj, Kabul*, and *Ghaur*; and further states that, while the *Khiljans* were of a Turkish or Tartar race, the people of *Ghaur* spoke a dialect similar to that of Khorasan. The features of the Afghans are Jewish, though not more so than those of other Caucasian tribes; and there exists no solid support for the tradition of a Jewish descent.—Their language, which has in many instances a near affinity with the idiom of the Kurds, connects their origin with the main Indo Germanic family: the intermediate branch of which, connecting them with the European nations, was the tribe of Khozars, with whom, during the seventh century, many Jews and Christians were associated, previous to their extension from the shores of the Caspian and banks of the Volga into the northern countries of Europe.

The vernacular dialects of Beluchistan are two, namely the *Beluchi proper*, spoken in the lowland country southwards of Kelat; and the *Brahui*, which is the vernacular language of the inhabitants of the upland country, or Kohistan.* The former is a corrupt dialect of the Persian; and the latter, called *Bravda*, in Indian treatises on the Prakrits, is nearly related to dialects of the Indian language and Sanskrit stock.—Both tribes of this people are known under the general appellation of Belachis, but are divided into the *Jhallawans*, or tribes *living below*, and *Sarawans*, or tribes *living above*. So early as the time of Ibn Haukal they are distinguished by the names of *Beluj* and *Koj*; and are said to have spoken two different dialects. The name by which the *Brahui* tribe was then known, is doubtless a corruption of *Arokhaj*, or the Arachosia of the Greeks, which province included that part of the country, above Kelat, now inhabited by the *Brahuis*.

The Kurds, inhabiting the mountainous tract now called Kurdistan, in the western part of Persia, are composed partly of Christian emigrants from Syria speaking a modern dialect of the Syriac, but chiefly of barbarous Muslim tribes, who speak different dialects of the Kurdish language; which belongs to the Persian stock, and contains many words in common with the *Pushtu*, or dialect of the Afghans; with whom the Kurds have an evident resemblance in feature and character. The mod-

* See page 146 of this Journal.

ern Kurdistan comprehends the ancient Assyria, and parts of Armenia and Media; and may be said to extend from the neighbourhood of the great lakes *Urmiah and Van*, southwards to Luristan, where the *Lur*, *Kheyilu*, and *Lek* tribes, belong to the same family as the Kurds; who are considered by the Baron C. A. De Bode,* neither of Arab nor of Turkish descent, but representatives of the old Iranian settlers, or Zend race, who migrated from Media. If the correctness of this opinion could be proved, or that the present inhabitants of Kurdistan are in uninterrupted descent from those Medes, who took Nineveh and possessed the country of Assyria, it would afford curious evidence between the historical and philological branches of Ethnology on the subject of this people, whose language is a rude dialect of the Persian and said to contain many *Zend* and *ancient Persian* words. The identity of the modern Kurds with the *Kurdushians*, or *Carduchi* of the Greek historians and geographers, has been disputed; as the latter were clearly a branch of the northern *Chaldæan people*, and consequently of Semitic origin; whereas the Kurdish language affiliates them with the Arian branch of the Indo Germanic family. Masudi, *in* his *meadows of gold and mines of jewels*, assigns an Arab origin to the Kurdish tribes, who, from time immemorial have been wandering barbarians, and keepers of flocks, but in doing so he is in error, as their language, though mixed with many Semitic words, is cognate in grammatical structure with those of other Arian dialects, and affords the safest clue to the origin of this people; whose country Ibn Haukal places on the river *Kurdanah*, and calls their encampments *Ord* or *Ordu*, an Indian appellation for a wandering horde.

The other branches of the Arian stem are the Armenians and Ossetes. Klaproth considers the Armenian language as part of the Indo-Germanic stock, and that it contains many Indo German roots, and points of relation with the languages of northern Asia, which are allied with dialects of the Arian race.

The *Ossetes* or *Osi*, inhabiting the central portion of the western Caucasus, north of Georgia, speak a dialect which contains many words in common with the German and Persian languages; and are considered by the Georgian historians, to be descendants of the Khozars; a tribe of Scythian Nomades, allied to the Sogdians, or Indo-Scythians; who

* Travels in Luristan and Arabistan by the Baron C. A. De Bode, London Vol: 1 p: 275.

about A. D. 625,* penetrated into Azerbijan by the pass of Derbend; and, extending themselves between the rivers Kur and Araxes, left a colony of their own in place of the tribes whom they expelled. The districts in which they settled are called by Arab geographers *Alan* and *Aran*; to the north of which between the mountain of *Jabal-al-Fatah* and the Caspian sea, Naoshirwan, king of Persia, built a wall in order to shut out from his dominions these Sarmatian tribes; among whom, at an earlier period, Arian colonies from Persia appear to have settled and given to this mixed race the names of *Aran* and *Alan*. They belonged to the same original race as the *Asi* inhabiting the eastern Caucasus, previous to the destruction of the Bactrian Empire; and became known to Europe as the *Alani* of the middle ages; but have been erroneously taken for a Turkish tribe. Masudi classes the Khozars with the Alans, the inhabitants of *Jabal-al-Fatah*, the *Balghars*, the *Khatals*, (inhabitants of Khutlan,) and *Bukars*.† They are probably the same as the *Asi* of Northmen, who were conducted, by Odin, to the shores of the Baltic and Black Sea from their original clime, and carried with them those relations in language and mythology which have been found existing between the North of Europe and Asia.

It is now generally admitted, on the evidence of Philological affinities between the languages of Europe and Asia, that the European nations are successive colonies of the Arian or Indo-Germanic race; of which the most ancient are the Celtic nations. To these succeeded the Germanic family, consisting of two principal branches, the Northmen, or Icelanders; and the true Teutonic, or High German and Gothic race. These two great races, whose descendants can be yet distinguished by their language, appear to have been divided and separated long before they quitted their abodes in Upper Asia: and in Germany, Bohemia, Poland, Russia and Servia, were succeeded by nations of the Sclavonic race. Many subjects of great interest, such as the origin of letters among these nations, the affinities of their languages, and the connexion of their mythologies, are still open for further investigation, and will repay the labours of the learned.

* Histoire Generale Des Huns par M. Deguignes Vol: ii p. 507.

† El-Masudi's meadows of gold and mines of jewels, in the original Arabic my copy of which differs somewhat from Dr. Sprenger's translation into English: Vol: i p. 310.

The northern traditions and songs attribute the introduction of the Runic alphabet to Odin; but the learned differ in opinion regarding the origin of these letters, some thinking that they were used in the North prior to the era of authentic history, and others asserting that they were carried there, by the Phœnicians, during their commercial expeditions. Ancient inscriptions, in this character, are found on the rocks and stone monuments of Denmark, Sweden, Norway, and part of Germany; and are written in the Icelandic or ancient Scandinavian language. The greatest number of them exist near Sigtuna and Upsala, in Sweden; where Odin is said to have resided, and introduced the mythological superstition connected with his name. In the Icelandic language, the word *run* signifies a letter, and *runa* a furrow or line; and as this alphabet has a marked deficiency of curved lines, and abounds in straight ones, it probably derived its appellation from this peculiarity, though some are disposed to trace the import of the name to the *Saxon Rune*, which signifies a mystery or hidden thing. The Runic characters were used for inscriptions, magical charms, and imprecations; and have been found on arms, trinkets, amulets, buildings, and wooden tablets; but were principally employed for lapidary inscriptions, connected with elegiac records of the dead and the pretended art of magic. The oldest existing record in this character is a digest of the laws of Scania, written in the thirteenth or fourteenth century, which is now preserved in the University library of Copenhagen.

The original number of Runic letters is sixteen; and whether borrowed or invented by the early Goths, they preceded the Mœso-Gothic alphabets, which, derived from the Latin and Greek, were in the third century of the Christian era applied to the Gothic language. The most striking resemblance existing between these and the characters of the Celtiberian and Etrusean alphabets would argue in favour of their Phœnician origin: and it is not improbable that the Runic, though derived from a Semitic alphabet of greater power, was reduced to its present poverty of letters, by writing in the same manner and under one character, like the alphabet of the Aigures, all letters which belong to similar organs. But I cannot further pursue here the existing analogies between the languages, writing, and mythology of Asia and Europe; and must briefly direct your attention to that interesting family of languages called by some Indo-Chinese, and by others Trans-Gangetic.

Trans-Gangetic languages. The American Missionaries, stationed at Sadiya, on the north-eastern extremity of Assam, and Mr. Campbell the Superintendent of Dorjeling in Eastern Nepal, have supplied new and valuable materials for a comparison of the Trans-Gangetic family of languages: under which name may be comprehended the *Bhutiya*, or *Tibetan*; the *Chinese*; the *Indo-Chinese*, or those of ulterior India, beyond the Ganges and Brahmaputra rivers; the *Korean*, and the *Japanese*. A certain analogy existing between the composition and grammatical structure of the Tibetan, Chinese, and Indo-Chinese languages, authorizes their classification into one family; though some Ethnographical writers have affiliated the Bhutiya race with the Nomadic Tartar tribes, inhabiting the central region of Upper Asia: but while the great number of mono-syllabic roots, which are found in the Trans-Gangetic languages, affix to them a certain family relation, they indicate such to be a distant one of remote times. The subject, however, is so extensive as to require for its elucidation volumes instead of pages; and we can therefore only briefly enumerate the principal subdivisions.

Tibetan. The great upland or plateau of central Asia is bounded on the south by two chains of mountains, the Kuenlun and Himalaya, between which lies the highland of Tibet; from whence the two great rivers of India, the Indus and Brahmaputra, originate, and insulate the country of Hindustan. The native name of this valley is *Bhut*; which is divided into *Beltistan*, or *Little Tibet* westward; *Utsang*, or *Middle Tibet*; and *Lassa*, or *Eastern Tibet*. Immediately south of the Himalaya, or Tibetan southern border, are the lower hill countries of *Kunawur*, *Garhwal*, *Kumaun*, *Nepal*, *Sikim*, and *Bhutan*, which run parallel to the great chain of snowy mountains, and are inhabited by tribes of kindred origin, speaking dialects of the Bhutiya family. Many of the tribes in these districts are Nomadic, and their languages are as yet imperfectly investigated and compared. Their physical ethnological character is Mongolian: being clearly evidenced by their form of features, absence of beard, and yellow color of the skin; and many roots and words of their languages, common to the proper Tibetan idiom, seem to verify the tradition of their origin, that, at some remote period, they migrated across the snows from *Bhut*.*

* Notes, on the Limbus, and other hill Tribes, hitherto undescribed, by A. Campbell, Esq. Superintendent of Dorjeling; and on the literature and origin

We have not as yet materials sufficient for accurately determining the family relations of those several hill tribes, and can only venture to speak with certainty relative to the mountaineers of Sikim, and neighbouring countries of Eastern Nepal. Here the mountaineers and men of the *Turai* are partly Hindus, speaking dialects of Hindi; partly Buddhists, speaking languages of Tibetan origin; and partly Pantheistical idolaters, not following the Brahmanical religion, and speaking languages that are referable to the Bhutiya stock. To the first belong the Khas, Mogurs, and Gurungs, or real Gurkhas, who constitute the chief portion of the population of Nepal. The second includes the Lepchas, Murmis, and Bhutias; and the third subdivision comprehends Limbus, Haius, Kerantis, and some other mountain tribes, not within the pale of either Hinduism or Buddhism. A comparison of the languages, spoken by these various tribes, with the Tibetan and Sanskrit; and with the numerous dialects spoken in the countries eastward of the Brahmaputra river, to the borders of China, is a subject well worthy the attention of Philologists, and one which will enable them to extend our knowledge of the several races who peopled India previous to the advent of the Hindu religion; if they but extend this comparison to the language of the Parbatiya races of Hindustan and the Dekhan, including the natives of the Rajmahal hills, the Koles, Gonds, Bhils, and Dhangars.

The real Gurkhas of Nepal, who now form the great bulk of the army, are denominated *Khas*, خس; which is a Persian term, adopted into Sanskrit, for a rustic or mountaineer, and was applied, as we have before noticed, to the Indo-Scythian tribes of *Kashkar* and *Bylta*,* dwelling in the neighbourhood of the *Sakas*, or Eastern Scythians: with whom the Bhutiya race, or native Tibetans of Ladak in Little Tibet, were connected in their origin. In the middle of the sixth century of our era, the Khakhan of Tibet, according to Masudi, sent a letter and presents to Nooshirwan king of Persia;† the former of which was written, in gilt letters, on the bark or leaf of a tree, agreeably to a custom yet prevalent

Certain hill Tribes in Sikim, by the same gentleman, in the Journal of the Bengal Asiatic Society for the years 1840 and 1842, pages 379 and 4.

* See page 180.

† See Masudi's meadows of gold and mines of Jewels, under the account of the Sassanian kings of Persia; and again under the section on the Arabs, and other desert tribes.

in the Bauddha countries of Burmah and Siam. The Arabic author further adds, that the Turks and people of Tibet are of one general stock; and a closer Philological examination of the Bhutiya family of languages will serve, I think, to establish that this opinion is not far removed from the truth. But the limits of this discourse will not admit of our entering into a more extended investigation of the origin of the Tibetans, or of their language, and the hill tribes connected with them; though it be certain that the people derived their knowledge, literature, and mythology from India, previous to the sixth century of our era, if facts stated by Masudi be correct.

Indo-Chinese languages. The Indo-Chinese Peninsula, situated between the bay of Bengal on the west, and the sea of China on the east, is formed by mountainous chains, running south eastward to the Gulf of Tonkin; which are continuous branches from the great Himalaya chain. The physical character of the nations inhabiting this remarkable country is Chinese; and the languages spoken by the inhabitants, excepting *Asamese*, evidently belong to the Chinese stock, consisting of monosyllabic roots, whose accidents of case, tense, and mood, are expressed by particles, and are varied by *intonations*; by which sounds originally the same are made to express entirely different meanings. The *Asamese* is a derivative from Sanskrit, and has a close affinity to Bengali; the Singpho, Abor, Burmese, and Manipurean dialects, are spoken by extensive tribes, who appear to have been the aborigines of the country, extending east and south east from the Brahmaputra to China, and contain several words common to them and the Bhutiya dialects; the Siamese, Laos, Khamti, and Ahom, merely dialects of the same original language called Tai, are more closely allied to the Chinese than the others, and evince that the tribes speaking them have a nearer affinity with the Chinese than the Singphos, and others of a Burmese stock.*

Anamese or Cochin-Chinese. This is a mono-syllabic language, having intonations, and all the other characteristics of Chinese; of which it is a coarse dialect. The learning of the natives seems confined to Chinese literature.

* Comparison of Indo-Chinese languages by the Rev. N. Brown, American Missionary at Sadiya, in the Journal of the Bengal Asiatic Society for 1837, p. 1023.

H. I. Cartendel. del. et Sculp.

BENI GARRAH.

Hampton lith. Bbay

Japanese and Korean. The Japanese is polysyllabic, and only resembles the Chinese in so far as it has adopted words from that language; but the physical characteristics of the people speaking it is that of the nations who inhabit high Asia. The affinity between the Japanese and Korean languages is not doubtful; but the last is more amalgamated with Chinese, as the people of Korea, since the Chinese conquest of the country, have borrowed much from their conquerors, both in language and literature.

I have thus sketched, imperfectly, the wide field of investigation open to Orientalists; and it is one of such interest that I may venture to hope, however brief the outline may be, it will be sufficient to stimulate to further exertion all those who are zealous and interested in the Geography, Ethnography, and History of the East.

ART. V.—*Notes on the Gharah Tribe, made during the survey of the Southeast Coast of Arabia, in 1844-45.* By Assistant Surgeon H. I. Carter of the H. C. Surveying Brig Palinurus.

The Gharah Tribe, غرة or *Beni Quorrah*, as they themselves pronounce the word, are a fine race of Bedwins, who occupy that part of the highland on the south east coast of Arabia, which intervenes between the town of Morbaat, and Ras al Sair. Their country is mountainous, and cavernous, and consists of a white stratified limestone formation, rising from four to five thousand feet above the level of the sea. The upper parts of the mountains are covered with good pasturage, and their slopes with a dense thicket of small trees, among which the frankincense and several other species of gum trees are the most plentiful.

The whole tribe are essentially *troglodytes*, from the nature of the country in which they live; which, in every direction, affords them much better natural habitations, than any they could erect for themselves.

They consist of a fixed, and nomadic population; those who still continue to inhabit the caverns of their ancestors, and those who wandering from place to place, chiefly seek their subsistence in a predatory life; of the two, the former appear to furnish the most favorable specimens of their tribe.

The following are their physical and ethnographical characters: They

are quick, active, tall, and well made, but too slender to be termed athletic, being more formed for agility and enduring fatigue, than for great bodily exertion: their features are, generally speaking, handsome, and their expression pleasing and generous, with a quick and apprehensive eye, but with no deficiency of boldness, or determination in their character. Their skin is of a light brown colour, with a shade of red in it; their hair glossy black, long, crisp, and curling, and principally confined to its natural localities, the other parts of the body presenting little or none; even on the face, there is seldom hair enough to be perceived at the distance of more than twelve paces off. The face is oval, the forehead low, but not receding, the frontal sinuses prominent, and the eyebrows more horizontal than arched: the eyelashes long, black, and thick; the eye itself moderate in size, transparent, and clear, with a deep, brown-black coloured iris. The nose, which is proportioned to the oval figure of the face, is long, and compressed laterally, with a slightly aquiline profile; the nostrils which are also compressed, have their alæ a little elevated, but this elevation appears more than it is in reality, from a prolongation of the *septum nasi* towards the upper lip. The lips are thin, the upper one short, with its superior border slightly elevated. The incisor teeth perpendicular, the chin rather projecting than receding, the posterior angles of the jaw more square than obtuse, and the cheek-bones high and prominent.

Nothing can be more simple than their clothing; a long piece of coarse blue cotton, wrapped two or three times round their loins, and descending towards their knees, in the manner of a short kilt, is all that the men wear; sometimes however, they twist a second piece round their waist, which serves as a belt, and to prevent their untrimmed hair from falling over their face and shoulders, they bind a small black cord round the margin of the scalp, so as to include the whole mass within its turns, and then secure the longer portion at the lower part of the back of the head, where the whole is fastened. This manner of dressing their hair, is more becoming to them than otherwise, the longer and loose portion being allowed to flow down their backs, or to remain between the shoulders in a large bunch, according to the nature of its curl. The band, or cord, with which it is tied, is made from their own hair, and not only serves them for the purpose mentioned, but also for any other use to which it may be applied, in case nothing better is at hand.

The women are much finer, fatter, and lighter coloured than the Arab

women of the coast, and their features are small and regular. They wear a loose frock, which is also made of blue cotton cloth, and is of the same size from the shoulders to the ground; it is open in front for about a foot, where it buttons tightly round the lower part of the neck, and the sleeves are short and large; behind, it trails on the ground, but in front it does not descend much below the knee. In addition to this, they have another portion of the same coloured cloth, which they throw over the back of their head and shoulders in the manner of a *dopattah*; but this they seldom use, and never think of concealing their faces under it, as is the custom with the Arab women. Their hair is divided by a narrow line, braided on the scalp, which passes from the centre of the forehead to the middle of the back part of the head, and they collect the hair into two large tresses, one on each side, which passing down behind the ears, hangs loosely over the breast. Few possess ornaments, not because they despise them, but because they have no money to purchase them. I have seen large pewter rings in the ears of some, though I am certain gold or silver ones would not have been refused for the same purpose.

Both men and women are tattooed over the front of the cheek-bones with three linear, perpendicular cicatrices. This Burckhardt thought to be confined entirely to the Mekkawis, and expressly says "It is called the Meshalé (المشالة). The Bedwins do not follow this practice."* It appears to be performed in Mekka and Djidda by the parents of the child forty days after birth †, but the period appears to be disregarded by the Bedwins, as I witnessed the process taking place in a girl of the Gharah tribe, about eighteen years of age, and being permitted to examine it, I found, that three small pieces of a rush, above half an inch long, had been introduced over each cheek-bone, beneath the skin, and that the exposed ends of each had been tied together: from this it was evident that they had to remain there, until the portion of skin immediately over them had perished, the result of which would be a permanent cicatrix over each of the parts, after they had healed.

The men are all armed with a sword, or matchlock; those who carry a sword, have also in addition, a sharp pointed stick, and shield. The matchlock men carry nothing in addition to their powder horn and pouch, excepting the crooked knife or jambia which all wear attached to

* Trav. in Arabia, Vol. I. p. 334.

† Ib.

a leathern girdle that encircles their waist; and none ever wear a matchlock and sword together, as the incumbrance of one would interfere with the free use of the other. Their matchlocks need no description as they are like all other matchlocks, and their powder horn is slung against the right side, by an ornamented belt passing over the left shoulder, while the pouch is secured, on the same side, to the belt which holds the jambia. Their sword is about a yard long, with a straight blade, a little more than two inches broad; the hilt, which is bound round with twine for the purpose of making the grasp more firm, is without a guard, and the pommel consists of a cubic piece of iron, about an inch in diameter, through which passes a hole, in an opposite direction to the broad surface of the blade. It has no scabbard, and is always carried in the right hand, sloping over the right shoulder; in the same hand also is carried a smooth round stick, about a yard long, made of a hard piece of wood, seldom exceeding an inch and a half in diameter in the centre, and diminishing gradually towards each extremity so as to end in a sharp point, which is charred; this they use as a weapon of offence, and throw in such a manner that it may transfix the objects at which it is aimed: they do not however appear to possess much skill in using it, for except in one or two instances I never saw it thrown with much precision, and in one of these, the Bedwin refused to repeat the experiment, intimating that he did not wish to risk his reputation a second time. If it were to impinge on the surface of the body, it would create a severe wound, which according to its situation might, or might not prove mortal. Among a crowd probably it would do much injury; but in single combat, the chances against it would be very great, as it could only be used at a distance, and in the hands of the people who are most familiar with it, and to whom I believe it is peculiar, it is any thing but a formidable weapon from their want of precision in throwing it. Each swords-man, in addition to his sword and stick, carries a small conical shield, about a foot wide, made of cane basket-work, and slung behind the left shoulder; this with the other arms mentioned completes the martial accoutrements of the Ghārah Bedwin.

Their language is the Bedwin dialect of the Southeast coast of Arabia; being, like that spoken by the inhabitants of the island of Socotra and by those also of the islands in the Bay of Kuria Muria, intensely guttural; and in some of their songs the modulation of the sounds is almost entirely confined to the throat. They do not understand the Arabic

spoken in the towns unless they have had much intercourse with the Arabs, who themselves on this coast appear to prefer conversing in the dialect of the Bedwins. In their singing they display a great fondness for melody, and their guttural articulation, which is never very harsh, is rendered most agreeable in some of their plaintive airs, which accord much with the European taste.

That part of the tribe, who have permanent places of abode in the mountains, live in natural caverns of the rock, which have been hereditarily transmitted to them, through their forefathers, and have been selected near some rivulet, or fresh-water spring, for domestic purposes, and for the sake of their cattle. In these caverns, which are of gigantic dimensions, and in the form and proportion of an interior fourth of a hollow sphere, with a stalactitic ceiling, they have ample room to pen their flocks and herds at night, or to afford them shelter during heavy falls of rain and wet weather; for which purpose they are surrounded by a dense fence of interwoven brushwood. In the different recesses of the interior, the Bedwin and his family live, and towards the outside, still sheltered by the overhanging vault, are the huts of the herdsmen and his dependents.

While the more peaceable part of the tribe are to be found among those who possess large herds of cattle, and are frequently connected with some of the principal people in the Arab towns, to whom in times of disturbance they afford protection, among the wandering or nomadic population, are to be found the poorest and most predatorily inclined; the latter possess but few cattle, have no fixed place of abode, and are the terror of all the industrious inhabitants of the coast; even the cultivator of the soil in the plains goes to his ground with a sword on one shoulder and his hoe on the other. Any insult offered to one of this tribe would afford a pretext for general revenge, when descending into the plains from the mountains, and pitching their miserable tents in the neighbourhood of some unprotected village, where the corn is half grown, they allow their cattle to stray into it during the night, until the whole is consumed, harassing the inhabitants at the same time with repeated thefts: the villagers knowing this and having no other prospect than that of losing every thing they possess, are thus compelled to desert their houses, and seek for safety and protection, in the more populous towns. In this way the village of El-Robaat, with its picturesque mosque, in the district of Dofar, has lately been completely deserted, although it is not

more than two miles from either of the large towns of Dareez, and Sihilah.

On the coast opposite the district occupied by the Ghârah tribe, they have acquired a desperately bad name; and my own experience among them leads me to infer, that without the protection of an influential member of their tribe, some of them would murder a stranger solely for the yard or two of cloth that may be on his back. The predatory population by no means afford the best type of their race; in every point of view they are inferior to the fixed inhabitant of the cavern, in whom the purer blood of his ancestors appears to be handed down to the present day.

They acknowledge no head, have no Shaikhs, and yield to no authority except that of an old chief, in the decision of a dispute, or in matters which concern the whole tribe.

They encourage blood feuds, and in an affray which ends in the death of one of the parties, the survivors, or one of his relatives, sooner or later, is murdered by the friends of the deceased, when the feud is at an end. At the village of Thagah, one of the Beni Ghârah came up to the Purser of the H. C. Brig Palinurus, and asked him if he were a Banian, to which the latter answered in the negative, whereupon the Bedwin rejoined, "if you had been one, I would have killed you, for it was through a Banian that my brother was murdered."

Their food consists almost entirely of milk, flesh and honey, and the wild fruits of the mountains; they possess also an intimate acquaintance with all the edible roots and vegetables that are indigenous to their soil, as well as the medicinal virtues of the gums that exude from the trees on the slopes of their mountains, and hold the juice of the aloe in great esteem for every thing. They are much addicted to smoking tobacco, and every one carries a short pipe about three inches in length, made out of a piece of soft limestone rock which hardens on exposure to the atmosphere. This is kept in a little leathern pouch, together with their supply of tobacco, a piece of flint, some tinder, the blade of a razor, and sometimes a penknife. Their manner of smoking is peculiar; it seldom consists of more than one inhalation; the tobacco being well lit, they make a forced expiration, and then inhale as much as possible, allowing the smoke to issue gradually through their mouth and nostrils, while they pass the pipe on to the next person; seldom more than five minutes are allowed to elapse, before a fresh pipe is prepared, and it almost ap-

pears to form part of the ceremony of greeting, when they meet each other on a journey; should there be no pipe present, they make use of the hole which is in the pommel of their sword, by fixing in a little stone on one side, and filling up the remaining part of the cavity with tobacco through the other, then scraping a few shavings with their sword, from off the surface of their pointed stick, they envelope a lighted portion of tinder within them, and rolling the whole up into a ball, apply it to the tobacco in the pommel of their sword, forcibly drawing the air at the same time through that side in which the stone is.

Their mode of salutation consists in placing the tips of the three first fingers of the right hand on those of the persons they salute, and afterwards kissing them audibly; they do this to every member of the assembly, to strangers as well as to acquaintances. It is the first passport and best introduction, and should never be neglected by any one who wishes to establish a friendship among them.

They profess themselves to be Mahomedans, undergo the operation of circumcision, and keep up the ceremony connected with it; but they pay very little attention to the other formalities of the Mahomedan religion. Their chief fear appears to be of ghosts and the devil, and this far exceeds their confidence in the protection of the Supreme Being.

Art. VI.—*Memoranda on the Great Comet of* 1844-5. By William Pole, Fellow of the Royal Astronomical Society of London, Professor of Civil Engineering in the Elphinstone College, Bombay, &c. &c.

The object of the present paper is to offer to the Society a summary of the information obtained in India, respecting the great Comet that appeared in these latitudes in the beginning of the present year. Some of the following details have already been published in the Journals of this and other Presidencies, but I trust it will not be thought inexpedient to preserve them in a more permanent form; and it is with this object I have collected the whole together, and now present the information to the Society.

The circumstance that the Comet was, from its position in the heavens, invisible to the greater part of Europe, renders it more to be desired

that all the information gained respecting it, in these more southern latitudes, should be preserved and recorded. Had it been observed in England, or in those parts of the Continent where the best Observatories and the most skilful astronomers are located, our contributions towards its investigation would have formed but a small item in the general stock; but as it is, they are of much more comparative value. The only Observatories where the Comet could be well seen, excepting in India, were those of the Cape of Good Hope, St. Helena and Paramatta; from all which it has doubtless been observed, but the results of the observations have not yet been published, or at least have not yet reached this country. In some of the more southern of the European establishments, observers may perhaps have caught a glimpse of it, but at too low an altitude and too much involved in the sunlight to admit of their accurately noting it. In India, a multitude of observations have been taken upon it, and from these no less than six separate determinations of its orbit have been made, four in our own Presidency, and two in that of Madras. In Bengal nothing appears to have been done, perhaps for the reason that in the higher latitude of Calcutta, it could with difficulty be seen.

In treating of the present Comet, we may notice (I.) Its history; (II.) Its physical character; (III.) Its apparent path in the heavens; (IV.) Its orbit.

(I.) The History of the Comet, *or, speaking more strictly, of its present visit to our system.* Comets are only visible for a short time before and after they pass their *perihelion*, or nearest approach to the sun; and it is generally after this that they are best seen, owing to the increased brightness they then attain. The Comet we are now describing passed its perihelion about the middle of December: before this we do not find that it was noticed at all. It first became visible in these latitudes, as it emerged from the sun's rays, about the beginning of January 1845; but though it daily outran the sun considerably in right ascension, and acquired a more favorable position for observation, its light gradually diminished as its distance from the sun and the earth increased. About the beginning of February it became invisible to the naked eye, and early in March it was lost sight of altogether.

The first published notice of the appearance of the Comet was contained in a letter inserted in the *Bombay Courier* of the third of January, where it was simply described as appearing in the western sky.

south of the zodiacal light, with a "tail of terrible length," and with the star or nucleus perfectly clear.* The *Bombay Times* of the following day added, that the tail was very distinct, about 7 degrees in length and of a pear shape: the nucleus also was well defined. The *Courier* of the 10th contained, I believe, the first definite account of the place of the Comet in the heavens. This was a communication from myself, and ran as follows:

"The Comet is at present situated in the constellation *Grus*, between the stars β, and γ, its right ascension being about 22 h. 45 m. and its declination about 45° south. It passes the meridian about half past three in the afternoon, and sets, bearing S. 41° W. at a quarter past eight. It never rises to those parts of the earth which are of a higher latitude than about 45° north, and is therefore invisible in England, and at most Observatories where the greatest facilities for observation are found. The tail of the Comet points directly to the two stars α and η of the constellation *Phœnix*, and may be distinctly traced for 10 degrees or more."

The *Times* of the next day published also a determination of its place in the heavens on the 30th of December, from observations taken on board the *Anonyma* clipper,† then off the Malabar Coast in latitude 14° 22′ N. Long 74° 18′ E. on her way to China. The writer of this communication describes the tail as 5 or 6 degrees long, and the nucleus as large as a star of the fourth or fifth magnitude.

The first published determination of the *orbit* of the Comet, was given by Mr. J. T. Waterston, teacher of Astronomy to the Indian Navy, in the *Bombay Courier* of the 21st January. This was however only intended to be a rough approximation to the elements of the orbit. The same Journal contained, on the 24th of January, another determination by myself, from different observations, and this latter, although also an approximation, subsequently proved to be nearer the truth than the former one. Many other notices of the Comet subsequently appeared; the results of the whole will be found in the following Tables.

* The Comet ought to have been visible at Madras before it was seen here. In the *Madras Spectator* of the 4th of January, is an article drawing attention to the Comet of *Mauvais* in the constellation *Cyrus (?)*. Probably "Cyrus" is a misprint for *Grus*, and if so, the new Comet must have been meant, and must have been mistaken by the writer of the article for that of Mauvais.

† By Captain Drinkwater Bethune, C. B.—R. N.

PLACES OF THE COMET OF 1844—5, AS OBSERVED IN INDIA.

Date.	Mean time at Place of Observation.			Right Ascension.			Declination; South.			Observer.
1844.	H.	M.	S.	H.	M.	S.	°	′	″	
Dec. 30th	6	50	7	20	50	43	43	13	0	Bethune.
1845.										
Jan. 4th	7	0	0	21	53	39	44	41	25	Young.
,, 5th	6	47	31	22	5	7	44	49	10	T.
,, 6th	6	48	33	22	18	6	44	49	20	T.
,, ,,	7	12	0	22	18	44	44	48	0	W.
,, 7th	6	53	13	22	30	35	44	42	45	T.
,, ,,	6	56	32	22	30	41	44	40	45	B. O.
,, 8th	6	52	15	22	42	38	44	27	39	T.
,, ,,	6	54	32	22	43	1	44	28	50	B. O.
,, ,,	7	6	56	22	42	59	44	29	41	C.
,, 9th	6	46	23	22	54	31	44	12	16	T.
,, ,,	6	56	25	22	54	56	44	11	45	B. O.
,, ,,	7	4	40	22	54	57	44	11	28	C.
,, ,,	7	15	0	22	54	30	44	15	0	P.
,, 10th	6	46	4	23	6	25	43	50	29	T.
,, ,,	6	57	09	23	6	27	43	50	0	B. O.
,, ,,	7	8	50	23	6	37	43	51	1	C.
,, 11th	6	51	23	23	17	45	43	24	15	T.
,, ,,	6	58	04	23	17	57	43	25	50	B. O.
,, ,,	6	53	35	23	17	53	43	25	6	C.
,, 12th	6	42	27	23	28	46	42	53	54	T.
,, ,,	6	53	42	23	28	57	42	55	13	C.
,, 13th	6	53	54	33	39	36	42	21	45	B. O.
,, ,,	7	0	17	23	39	38	42	21	49	T.
,, 14th	6	50	23	23	49	52	41	43	40	T.
,, ,,	6	56	5	23	49	57	41	45	28	C.
,, 15th	6	47	12	23	59	42	41	6	39	T.
,, ,,	7	5	27	23	59	58	41	6	11	C.
,, ,,	7	15	0	23	57	0	41	40	0	P.
,, 16th	6	35	14	0	9	4	40	24	30	T.
,, ,,	7	17	31	0	9	28	40	24	23	C.
,, 17th	6	50	54	0	18	29	39	40	57	T.
,, ,,	7	8	2	0	18	40	39	41	5	C.
,, ,,	7	12	0	0	19	12	39	40	0	W.
,, 18th	6	40	47	0	27	3	38	56	38	T.
,, ,,	7	0	0	0	28	32	38	55	0	W.
,, ,,	7	2	1	0	27	26	38	56	13	C.
,, 19th	6	43	27	0	35	24	38	8	56	T.

PLACES OF THE COMET OF 1844—5.—Continued.

Date.	Mean time at Place of Observation.			Right Ascension.			Declination; South.			Observer.
1844.	h.	m.	s.	h.	m.	s.	°	′	″	
Jan. 19th	7	6	1	0	35	50	38	9	16	C.
„ 20th	7	0	9	0	43	51	37	21	32	C.
„ 21st	7	17	20	0	51	12	36	30	56	T.
„ „	7	38	17	0	51	44	36	31	46	C.
„ 22nd	0	56	17	0	58	50	35	46	43	T.
„ „	7	0	0	0	59	12	35	50	0	W.
„ „	7	7	49	0	59	57	35	44	10	C.
„ 23rd	6	40	36	1	5	54	34	53	44	T.
„ „	7	0	0	1	6	12	35	2	0	W.
„ „	7	2	33	1	5	57	34	55	17	C.
„ 24th	6	40	49	1	12	28	34	2	44	T.
„ „	7	0	0	1	13	04	34	10	0	W.
„ 25th	7	0	0	1	19	36	33	17	0	W.
„ „	7	12	16	1	18	55	33	9	44	T.
„ „	7	13	18	1	19	12	33	16	0	C.
„ 26th	6	46	45	1	25	2	32	22	44	T.
„ „	7	0	0	1	25	48	32	25	0	W.
„ „	7	8	21	1	25	20	32	26	41	C.
„ 27th	6	59	42	1	30	07	31	33	43	T.
„ „	7	0	0	1	30	48	31	41	0	W.
„ „	7	21	15	1	31	21	31	37	6	C.
„ 28th	7	15	38	1	36	51	30	46	22	T.
„ „	7	19	45	1	37	1	30	48	53	C.
„ 29th	6	58	1	1	42	10	29	58	31	T.
„ „	7	29	3	1	42	27	30	0	23	C.
„ 30th	6	50	47	1	47	21	29	9	55	T.
„ „	7	5	13	1	47	36	29	13	16	C.
„ 31st	7	3	3	1	52	18	28	21	55	T.
Feb. 1st	6	53	43	1	57	16	27	34	55	T.
„ „	8	43	9	1	57	49	27	36	50	C.
„ 3rd	8	57	46	2	6	21	26	2	55	T.
„ „	8	3	16	2	6	36	26	8	44	C.
„ 4th	6	56	22	2	10	53	25	26	56	T.
„ 5th	6	55	41	2	15	13	24	44	56	„
„ 6th	6	53	9	2	19	1	24	1	56	„
„ 7th	7	0	19	2	23	4	23	21	56	„
„ 8th	6	55	26	2	26	51	22	39	56	„
„ 9th	6	54	1	2	30	28	21	59	26	„

PLACES OF THE COMET OF 1844—5.—Continued.

Date.	Mean time at Place of Observation.			Right Ascension.			Declination. South.			Observer.
1844.	h.	m.	s.	h.	m.	s.	°	′	″	
Feb. 10th	6	59	26	2	33	52	21	24	26	,,
,, 11th	7	2	6	2	37	21	20	47	56	,,
,, 12th	7	1	44	2	40	48	20	10	56	,,
,, 13th	6	57	4	2	43	2	19	30	56	,,
,, 14th	7	3	25	2	47	14	18	53	56	,,
,, 15th	7	7	11	2	50	18	18	21	56	,,
,, 16th	6	57	23	2	53	7	17	45	56	,,
,, 17th	7	6	52	2	56	10	17	12	56	,,
,, 18th	7	3	9	2	59	5	16	36	56	,,
,, 19th	7	6	11	3	1	56	16	5	0	,,
,, 20th	7	0	1	3	4	29	15	34	56	,,
,, 21st	7	1	8	3	7	18	15	2	30	,,
,, 23rd	7	8	40	3	12	15	14	7	56	,,
,, 24th	7	6	35	3	14	44	13	38	56	,,
,, 25th	7	22	37	3	17	23	13	12	30	,,
,, 26th	7	9	39	3	19	37	12	44	4	,,
,, 27th	7	16	4	3	22	3	12	19	4	,,
,, 28th	7	11	57	3	24	19	11	53	4	,,
March 1st	7	11	55	3	26	44	11	27	4	,,
,, 2nd	7	13	6	3	28	49	11	1	4	,,
,, 3rd	7	7	47	3	31	3	10	37	4	,,
,, 4th	7	10	23	3	33	7	10	14	4	,,
,, 5th	7	26	9	3	35	24	9	52	4	,,
,, 6th	7	11	27	3	37	23	9	29	4	,,
,, 7th	7	20	8	3	39	7	9	5	4	,,
,, 8th	7	43	8	3	41	47	8	46	4	,,
,, 9th	7	23	13	3	43	27	8	25	4	,,
,, 10th	7	32	15	3	45	43	8	2	4	,,
,, 11th	7	3	15	3	47	29	7	43	4	,,

(II.) THE PHYSICAL CHARACTER OF THE COMET will appear partly from the quotations already made. The nucleus presented the brightness of a star of about the fourth or fifth magnitude; it was distinct, but not so well defined as to lead to the supposition it was a *solid* nucleus; it had rather the appearance of a condensed nebulosity.

The tail was of the ordinary wedge shape and presented no unusual characteristic. It appeared to extend through a space varying from four

or five to ten degrees, according to the state of the atmosphere and the acuteness of the eyes of the observer; I believe I once traced it for upwards of ten degrees on a very favorable evening.

The only remarkable physical peculiarity presented by this Comet was that, according to some observers, it had two tails. I give the following extract from Mr. Waterston's letter of the 21st January, where this appearance is mentioned.

"There is a very remarkable appearance attending upon this Comet which I do not see noticed by any of your correspondents. It has got two tails!! The second tail, which is nearly in an opposite direction to the principal one, was first seen on Thursday evening last, (16th January) and has continued visible ever since, although the increasing moonlight is very unfavorable. It is extremely faint, but has been recognised by several persons, and I have traced it distinctly for about 3° towards the sun; as the telescope is none of the best, perhaps some one of your readers, with better means of observation, will be able to give evidence on the subject. The only instance on record of a like appearance is the Comet that was seen in January 1824. Two tails were observed in it, diametrically opposite at first, but they soon began to make a visible angle, and when last seen, the angle between them was 130.° The tail towards the sun was then, as in the present case, much the fainter of the two."

It is to be regretted that we have not obtained the results of the examination of the Comet with any really good telescopes; and therefore our knowledge of its physical character is but little beyond what we could have obtained with the naked eye.

(III.) THE APPARENT PATH OF THE COMET IN THE HEAVENS, has been ascertained with tolerable exactness. The places of the nucleus have been taken at three Observatories in India, namely Madras, Trevandrum, and Bombay; and occasionally by private individuals.

The *Madras* Observatory is, as is well known, under the charge of Mr. T. G. Taylor, the Hon. Company's Astronomer, who has kindly favored me with the particulars of his observations expressly for this paper. They have been forwarded to the Astronomical Society of London, but have never before been published in this country. They were taken with a five feet achromatic, mounted as an equatorial; but the circles for time and declination were small.

The *Trevandrum* observations were taken by Mr. John Caldecott, with a seven feet equatorial, and corrected for the effects of refraction. Mr. Caldecott states, that the Comet was first observed there on the 30th of December, but owing to the obscured state of the atmosphere for several nights subsequent, no favorable observations of it were attainable till the 8th of January. Mr. Caldecott's observations, as given in the preceding table, are taken from the *Madras Spectator* of the 1st and 12th of February.

The *Bombay* Observatory is now under the care of Professor Orlebar; but the observations on the Comet were taken while Dr. Buist had charge of the establishment. They were made with an altitude and azimuth instrument by Gilbert, both circles reading to seconds with micrometer eye pieces. The condition of the instrument is not very good, and the support is uncertain; but great care was taken in the levelling and adjustments immediately before the observations. The observers were Kern Lukshman and Janardhan Ramchunder, Native Assistants at the Observatory, and formerly pupils at the Elphinstone College. The time was taken from an excellent sidereal clock corrected by transits observed every day.

In addition to these observatory data, isolated observations were taken by several individuals,* and the whole I have been able to procure are collected in the preceding table, in the order of their dates. Those by Mr. Waterston were kindly communicated by that gentleman to me for this memoir.

The first column of the table gives the date: the second the *local* mean time of the observation. The third and fourth contain the reduced place of the Comet. The letters in the fifth column refer to the name of the observer, thus:

Those marked	T.	are	by Mr. Taylor, taken at Madras.
,,	C.	,,	by Mr. Caldecott, Trevandrum.
,,	B. O.	,,	those of the Bombay Observatory.
,,	W.	,,	by Mr. Waterston.
,,	P.	,,	my own.

(IV.) THE ORBIT OF THE COMET is determined from its apparent path in the heavens. There are six elements required to be known, the longitude of the perihelion, the longitude of the node, the inclination of the orbit to the ecliptic, the perihelion distance, the direction of the motion, and the date of the perihelion passage. These may all be obtained from *three* observed apparent places of the Comet in the heavens. The problem is however one of considerable difficulty. It was

* My own means of observation were, I regret to say, very limited. An indifferent sextant, kindly provided by a friend in the Indian Navy, a worse theodolite, and an old sea glass, were all the apparatus I could command.

first resolved by Newton, who called it *Problema longe difficillimum*. Its direct solution analytically is impracticable, and therefore astronomers have adopted indirect methods; first finding an orbit near to the truth by mechanical and graphical means, and then correcting it, by computation, until such a parabola is found as will satisfy the data. The approximate method given by Vince (*Astr.* Art. 556) is one of the most easy and simple, and this may be corrected afterwards by the formula of Olbers.

There have been, as I have already stated, six separate determinations of the orbit of the Comet made in India. They are all presented in the following table.

ELEMENTS OF THE ORBIT OF THE COMET OF 1844—5

	A Wartmann	B Pole	C Wartmann	D Taylor	E Calcutt	F Pole	Means of 3	Means of D. E. F.
Perihelion Passage, Greenwich Mean Time, 1844 Dec.	19.584	13.95	13.605	14.075	13.41	14.01	14.782	13.831
Longitude of ascending Node	° ′ ″ 137 20 0	° ′ ″ 123 2 30	° ′ ″ 117 41 30	° ′ ″ 119 24 0	° ′ ″ 119 31 35	° ′ ″ 119 28 40	° ′ ″ 122 34 22	° ′ ″ 119 7 25
Longitude of Perihelion	259 47 6	288 34 30	288 30 0	295 9 0	298 51 28	294 28 30	288 23 6	296 8 59
Inclination	41 22 25	45 7 30	45 51 0	45 19 0	45 33 40	45 17 10	44 45 8	45 23 18
Perihelion distance	0.0342	0.2193	0.244	0.2401	0.2707	0.2367	0.207	0.2491
Motion	direct	direct	direct	direct	direct	direct	direct	direct

Column A. by Mr. Waterston, from his own observations. This determination has the merit of being the first published; but, being founded on observations confessedly rough and imperfect, it was only intended to give a general idea of the position of the orbit with reference to our system.

Column B. is a determination of my own, calculated from two observations by myself and one by Capt. Bethune. It is nearer the truth than the former one.

Column C. is a later determination of the orbit by Mr. Waterston, from his own observations. This has not before been published.

Column D. is by Mr. Taylor of the Madras Observatory, and is calculated from his own observations. Mr. Taylor published a first approximation to the orbit, in the *Madras Spectator* of the 5th of February, 1845, but afterwards found it necessary to alter some of the elements. This column gives the corrected determination, which Mr. Taylor has kindly supplied me with. He informs me that these elements represent the observed longitudes with great accuracy, but do not agree well with the observed latitudes; he is of opinion that no parabolic orbit will agree with the actual path of the Comet.

Column E. is the determination of Mr. Caldecott, from the Trevandrum observations, published in the *Madras Spectator* of the 12th of February, 1845.

Column F. is calculated by myself from the observations made at the Bombay Observatory. These latter were kindly furnished me for the purpose by Professor Orlebar, who had not sufficient leisure himself to undertake the computation.

The amount of discrepancy between these determinations respectively, will appear but small, (particularly between the three latter ones), when the nature of the operation by which they are deduced is considered. It is required that we work from the lesser to the greater, from a small part to the whole. We are enabled only to observe a very small arc of the orbit, and from this we have to calculate the whole immense sweep that the Comet makes through our system. It is an analogous case to a person being required to determine the configuration and dimensions of a colossal arch by an inspection of only one of the stones which compose it; for the orbit whose elements we have to determine, bears as great a proportion to the minute track in the heavens lying within our ken, as does the

curve of the largest arch to that of one of its isolated voussoirs. Of course therefore every trifling error in the data becomes in the result proportionately magnified.

The two last columns of the table contain the *means* of the foregoing six. The first of the two is the mean of all; but I have thought that the average would be more likely to be correct, if the first, second, and third determinations, (A, B, and C,) were excluded, as these were only approximations: I have therefore added the last column, giving the mean of the three *Observatory* determinations D, E, and F. I have no doubt that the orbit shewn in this column is very near the true one.

The symmetrical position of the orbit of this Comet in respect to the ecliptic is remarkable. * The axis of the parabola lies very nearly in the plane of the ecliptic, so that the perihelion and the descending node almost coincide. Moreover the inclination is about half way towards the perpendicular; and the perihelion distance is one-fourth of the mean distance of the earth from the sun.

The following particulars may be interesting to the general reader.†

1. The Comet's least distance from the sun's centre, (which, position before as mentioned, was attained on the 14th of December) was about 24,000,000, miles.

2. The following were its distances from the sun and the earth at the times named respectively:

		Distance from the Sun. *Miles.*	Earth. *Miles.*
30 December	1844.	54,000,000	97,000,000
9 January...	1845.	76,000,000	98,000,000
15 „ ...	... „	91,000,000	102,000,000

3. The mean velocity of its motion, between the 30th December and the 15th January, was about 2.6 millions of miles per day, or about 30 miles per second of time.

4. The length of the tail (supposing this appendage to have appeared about 10 degrees long) would be about 20,000,000 miles.

5. This Comet never approached, and never can approach, within many millions of miles of the earth's orbit; and therefore can never cause any sensible disturbance in the motion of our planet or its satellite.

* This was brought to my notice by Mr. Waterston.

† These were founded on the orbit given in column E.

When the orbit of a Comet has been determined, it is usual to search the lists of those already known, to ascertain whether any of the latter are identical with it, or whether it is the first appearance on record. By this process the periodicity of three comets has been demonstrated: these have been found to re-appear at regular intervals, and have in fact become ranked as members of our known solar system. On comparing the orbit of the Comet of 1844-5 with others already recorded, it does not appear to be absolutely identical with any one. There is an occasional similarity, and some of the dates interpolate well; but the discrepancies are too wide to admit of proof that the present comet is a return of any one previously known.

I have stated that the position of this Comet's orbit is such that the body itself, be it solid or vapor, can never approach within a great distance of the path in which the Earth moves. But this is not the case with all Comets; there are some whose orbits nearly intersect that of the Earth, and with such, there is therefore a *possibility* of collision; and many timid minds have on this account looked upon these erratic visitants of our system with much dread. But happily the light of reason and philosophy shines brightly enough in our day to dispel the gloom of such direful forebodings; the subject has been discussed by men of the most profound learning and science, and it has been shewn to a mathematical demonstration that an event of the nature referred to is so far removed from *probability*, that the fear of its occurrence ought to have no place in the minds of reasonable men. On this subject I quote the following remarks translated from an able little work by M. Arago.

"By virtue of first causes, whose natures are unknown to us, and which have given rise to many theories of the creation more or less plausible, the planets of our system perform their revolutions round the sun in orbits almost circular. The comets, on the contrary, travel in paths of extremely elongated ellipses, and they move in all imaginable directions. In returning from their points of aphelion, they constantly traverse our solar system; they penetrate within the interior of the planetary orbits, often they even pass between Mercury and the sun. *It is not then impossible that a comet may come in contact with the earth.*"

"After having acknowledged the possibility of a shock, we hasten to say that the probability of such an event is extremely small. This will appear evident at the first glance, if we compare the immense space in which our globe and the comets move with the small capacities of those bodies. Mathematical calculations go yet much further; as soon as a

determinate hypothesis is formed of the comparative diameters of the earth and comet, a numerical estimate affords the probability of the question."

"Let us suppose a comet, of which we only know that at its perihelion it is nearer the sun than we are, and that its diameter is *one-fourth* of that of the earth. The calculation of probabilities shows that, of 281,000,000 of chances, there is only one unfavourable—there exists but one which can produce a collision between the two bodies."

"Without endangering the tranquillity of mind which the above number ought to give to the most timid persons, I can say that if, in calculating the probability of the collision of the earth and the nucleus of a comet, we have taken the supposed estimate of the comet's diameter at one-fourth of that of the earth, we have much underrated it: that the chances of their meeting according to the calculation, will be much too low, in the case where the question would be not of the nucleus properly so defined, but of the nebulosity which covers it on all parts. If then the number be taken at ten times the preceding, the result certainly will not be exaggerated. Just ideas on the calculation of probabilities are as yet so little known, and the public sometimes mistake in so strange a manner as to the numerical results to which the computations, lead, that I felt disposed, at one time, to suppress this short chapter. I could have done so with less scrup'e; for as to what regards the comet of 1832, the considerations of probability are quite superfluous; for the orbit is known, and we can tell with certainty what will be, during the future apparition, its least distance from the earth."

"The problem, it should be understood, was quite different in the calculations of which I have stated the results. There we wanted to determine, *without any information as to the form and position of the comet's orbit*, to how many *chances* of collision the earth was exposed. In this manner we have found, as to the nucleus properly so called, *one* chance of collision, *one* woeful chance to 280,999,999 favourable chances. As for the nebulosity, in its most habitual dimensions, the unfavourable chances will be from 10 to 29 in the same number of 281,000,000. Admitting, then, for a moment, that the comets which may strike the earth with their nucleuses would annihilate the whole human race; then the danger of death to each individual, resulting from the appearance of an *unknown comet*, would be exactly equal to the risk he would run, if in an urn there was only *one single* white ball, of a total number of 281,000,000 balls, and that his condemnation to death would be the inevitable consequence of the white ball being produced at the first drawing."

"Every man who is willing to make use of his reason, however he may be attached to life, will laugh at so small a danger. Well, then, the day on which a comet is announced, before observations have been made on it, before it has been possible to determine its path, then is there, for each inhabitant of our globe, the chance of the white ball from the urn of which I have just spoken."

Art. VII.—*Literary and Scientific Notices.*

I.—*M. Botta's discoveries in the ruins of Nineveh.*

To the letters which we have heretofore published from M. Botta, respecting the excavations at Khorsabad, we may add the following from the Augsburgh Gazette. There are at present 160 workmen engaged thereon, and besides the walls, which are covered with sculptures and inscriptions, many antiquities of a peculiar and at present inexplicable nature are met with. For example, under the large bricks, of which the floor consists, are stone repositories, which are filled with small clay enamelled figures of men and beasts, without anything on the surface indicating the existence of such repositories, or there being anything with them to explain their contents. In another place they discovered great rows of earthen vases of a remarkable size, placed on a brick floor and filled with human bones, and similar to those which have been found at Babylon, Ahwaz, and other places in South Persia. The place seems to have been plundered before its destruction, for neither jewels, nor instruments, nor even the small cylinders, so numerous in the neighbourhood, are any where found; merely some bronze images of beasts, (for instance a very fine lion,) have been discovered, as also a part of the bronze wheel of a war chariot. But the most incomprehensible circumstance is, that the alabaster slabs with which the walls are cased, and which are covered with inscriptions and sculptures, bear on the back likewise inscriptions in arrow-headed characters, and certainly not in the Assyrian, but in the Babylonian language. As it is naturally not to be presumed that the architects would have been so foolish as to have graven these inscriptions, where no one could have seen them without pulling down the wall, it must be presumed that the slabs have served twice, first belonging to a Babylonian place, and afterwards have been transposed by the Assyrians and freshly graven. At present no sculptures have

been found on the back, which would, indeed, be of the greatest interest, as Babylonian sculptures having ever yet been discovered. Some of the lately found bas-reliefs are especially remarkable; for instance, one representing the siege of a town situated on an island: the sea is covered with ships, the fore part of which form a horse's head, and which are occupied in bringing the trunks of trees for the purpose of erecting a dam. The water is covered with all kinds of marine animals, fishes, crabs, and winged sea horses. The richness of the details, and the mass of sculpture which the palace contains, are amazing, and it is incomprehensible how so magnificent a building should have been so strangely buried in the earth.

Letters from Constantinople announce, that M. Botta has nearly completed his discoveries in the subterranean palace of the ancient Nineveh. He was then on the point of clearing the grand southern facade. The east entrance of this front is entirely cleared: six colossal bulls, with the heads of men, and two human statutes, also colossal, strangling lions in their arms, form its principal ornaments. These sculptures are said to be of great beauty, and as fresh as if executed yesterday. The two bulls in the centre, as seen from the front, form entrance-pillars. The animals have inscriptions between their feet, some of which have, however, been cut away by the chisel, so as to leave only their traces; a circumstance which would seem to indicate that a new dynasty, or a new monarch, taking possession of the palace, had removed the inscriptions of his predecessors. M. Botta is anxious to transport these figures to Paris, but the physical difficulties are very great. Still, he hopes to remove them on wooden rollers to the Tigris, which is five leagues from Khorsabad, whence they might go, by the first flood, to Bassora, and there be received on board a ship of war for France. This discovery of M. Botta's is one of the most valuable which has been made, for many years, in the field of archæology,—supplying an important link, hitherto wanting, and believed to be irrecoverable, in the history of the Arts amongst the earliest civilizations of the world. It deserves, therefore, some words of further notice, which we collect from the French papers in general, and the *Revue de Paris* in particular. The Greek historians and the books of the Old Testament, furnish the very vaguest hints as to the condition of Art among the Medes, Assyrians, and Babylonians; and hitherto no monuments were known to exist by which they were more fully represented.

Unlike the cities of ancient Egypt, which have transmitted to our times, almost in their integrity, the Arts of their builders, the great cities of Central Asia—Susa, Ecbatana, Babylon, Nineveh—have perished from the face of the earth, leaving, in the language of ancient prophecy, scarcely one stone upon another. Dreary mounds of rubbish, traversed by deep and narrow ravines that indicate the lines of the streets, alone mark the sites of these mighty cities. Nineveh, the city of fifteen hundred towers, whose walls were a hundred feet in height, and had space on their summit for three chariots abreast, seemed more utterly ruined than even Babylon; yet from beneath its dust has the long buried Art of the Assyrians been recovered, and an impulse been communicated which may end in bringing, through future excavations, our knowledge of the former to something of a level with our understanding of Egyptian Art. M. Botta, as our readers know, is a distinguished Archæologist, who was Consul for the French at Mosul; and there, his neighbourhood to the ancient Nineveh inspired him with an earnest desire to try some excavations in the soil of the lost city. His first attempt was on the most conspicuous mass, (for the ruins of the various gigantic edifices of old present now the appearance of separate barren hills,) near the village of Nininoah, supposed by tradition to be the tomb of Ninus. Here however, finding only broken bricks and insignificant fragments, he opened his trenches in the sides of another hillock, on whose summit is built the village of Khorsabad, where bricks had been frequently found covered with inscriptions in the cuneiform arrow-headed letter. It was principally the hopes of finding other inscriptions, which might help, by comparison, to decipher the cuneiform writings, hitherto unreadable, that had tempted M. Botta to these explorations. Something of the success our readers know [No. 895, and elsewhere]. An Assyrian edifice has been recovered, in a state of unlooked for preservation. On this discovery, as our readers know, the French Government supplied M. Botta with the means of continuing his researches, and sent out M. Flandin to make drawings of whatever could not be removed. A tolerable judgment may now, from what is laid open, be formed of the extent and importance of these ancient constructions. Fifteen halls of this vast palace, with their corresponding esplanades, have been cleared. The rest of the monument, it is made quite certain, has been destroyed,—intentionally however, the stones having been carried off to serve for other buildings. A fortunate accident—that would seem an

evil one at the time—has preserved for us what remains. This portion of the palace has been ravaged by fire, which has entirely destroyed only the timbers of the roofs, but as the other calcined materials were rendered useless for new construction, they have been left where they were; and thus, one-third of the edifice remains, to testify of the rest. We have, from time to time, described the sculptures and inscriptions found within its walls; and we announced to our readers the work which, embodying M. Flandin's drawings, will furnish the details of this curious discovery. We may add, that the fragments thought worthy of being collected and transmitted to France, are numerous and important enough to load a ship. *Athenæum No.* 893 *p.* 1179 *and No.* 900 *p.* 99.

2.—*Microscopic Life in the South Polar Ocean.*

Prof: Ehrenberg laid before the Berlin Academy, on the 23rd May 1844, a paper containing some of the results derived from his recent investigations upon materials furnished from the South Polar Expedition of Captain Ross, and the voyages of Messrs. Darwin and Schayer; their object being to determine the relation of minute organic life in the Ocean, and at the greatest depths hitherto accessible.

The study of the relations under which minute organisms exist has been recommended as one likely to throw considerable light upon the principal questions now agitated, involved in the recent history of the earth's crust; and the Author accordingly gave directions as to the methods of collecting them, which were adopted throughout the whole voyage. These relations of minute organic life were found, as the Author had anticipated, to be the same at the South as at the North Pole, and generally of great extent and intensity at the greatest depths of the Ocean. The following are the results:

1. Not only is there, as resulted from the former observations of the Author (vide Mikroskopische Leben in Amerika, Spitzbergen, &c.,) an invisible minute creation in the neighbourhood of the Pole, where the larger animals can no longer subsist, but a similar creation is highly developed at the South Pole.

2. Even the ice and snow of the South Polar Sea is rich in living organisms, contending successfully with the extremity of cold.

3. The microscopic living forms of the South Polar Sea contain great riches hitherto wholly unknown, frequently of very elegant shape,

since no less than seven peculiar genera have been discovered, of which some contain several, one as many as seven species.

4. The forms collected in the year 1842, near Victoria Land, were capable of being examined in an almost fresh state in Berlin, in May 1844, which shows how long preservation is possible.

5. The Ocean is not only populated at certain localities, and in inland seas or on the coasts, with invisible living forms, but is proportionately thickly crowded with life every where in the clearest state of the sea-water and far from the coasts.

6. Hitherto but one perfectly microscopic form from the high sea was known, and even that from the neighbourhood of the coast, namely the *Astasia Oceanica*, which Von Chamisso had observed; all other accounts were imperfect and useless. By the new materials, the number of species is increased nearly 100.

7. The hitherto observed oceanic microscopic forms are chiefly siliceous-loricated animals with some calcareous-shelled. Do these numerous forms derive the material of their shells from the bottom of the sea? This question becomes daily more interesting.

8. Siliceous-and calcareous-shelled minute living forms are not only mixed up with the muddy sea-bottom but they themselves form it. They live even to a depth of 270 fathoms, and consequently support a pressure of water equal to 50 atmospheres; the whole influence of this does not indeed bear upon their organic tissues when they are locally fixed, but when they move from the bottom upwards or reversely; yet it does not appear to have acted on the drawn up specimens. Who can doubt, but that organic beings which can support a weight of 50 atmospheres, may support 100 and more?

9. The supposition, that in great depths, above 100 fathoms, there is no fresh nutriment for organized beings of any kind, has become untenable.

10. Life and temperature in the depths of the ocean are in their variable relation, the points which at present deserve especial attention.

11. The showers of meteoric dust, or supposed ashes, have at present been proved to be, even in the case where they fell 330 sea-miles from land, of organic and terrestrial origin.

12. It is not perishable *Protococci or Ulvæ or Lichens*, that principally constitute the organic covering and soil of the ultimate islands in the

Polar Sea; but the living creatures that form the first layer of solid earth are invisible, minute, free animals of the genera *Pinnularia*, *Eunotia* and *Stauroneis* with their siliceous lorica. Several species from the North Pole and the South Pole are identical. *Jardine's Magazine of Natural History*: *No.* 90. *p.* 180.

3. *Depression of the Caspian.*

The President of the Geographical Society of London, in June last, read the note of a Russian operation for determining the actual depression of the Caspian Sea below the level of the Mediterranean, which operation had been reduced by the eminent astronomer, M. Struve, then in England, and communicated by that gentleman to him. A few years ago it was generally believed that the waters of the Caspian were at least 300 feet below the level of those of the Black Sea and Mediterranean. This view was adopted in consequence of a series of barometrical observations; but it having been found that, from the great number of stations across the land separating the Caspian from the Sea of Azoff, small errors had become greatly magnified, a new survey was made. Three able mathematicians Messrs. Tuss, Savitch, and Sabler were, therefore, employed to make independent trigonometrical levellings; and their observations agreeing to within a foot or two give for the mean result, 83,6 English feet as the depression, the possible error being limited to 1-3 foot, which definitively settles this long pending geographical question. *Athenæum*, *No.* 870, *p.* 601.

4. *Ethiopian Family of Languages.*

To the Rev. G. C. Renouard, Foreign Secretary of the Royal Geographical Society.

My dear Sir,—On opening, this morning your copy of Ludolf's Ethiopic Dictionary, to answer the inquiries of two Gondar scholars, I was naturally led to explain to them the gentlemanly kindness which induced you to trust your precious volume to the wear and tear of an African voyage, in the hands of a yet untried philologist. Though conscious that your only motive was that charity in science which is the highest boon of a philosopher, I feel myself bound to inform you, that your loan has not been thrown away; and while proceeding to give you a sketch of my gleanings in Ethiopic lore, I scarcely imagine that your love for the dif-

fusion of knowledge will allow you to take offence at receiving my letter through the channel of the Athenæum.

I am now seated on the ground, in a small thatched house, near the palace built by the Portuguese for king Facilidas. Upwards of one hundred manuscripts are scattered round me, most of them little better than Ethiopic rubbish; for the carelessness of the copyists and the indifference of the professors are such, that I have four copies of the Gospels affording far more discrepancies than any which Griesbach or Tischendorf have pointed out in the original Greek. As for the Old Testament, the Abyssines of later days have taken even greater liberties with the text, adding or lopping off altogether, not only two or three verses at a time, but even whole chapters. I have tried in vain to infuse a spirit of criticism, or, at least, of examination, amongst the few learned who still stand, like Pompey's Pillar at Alexandria, the tall remnants of ancient lore and might. But all my labour in instructing others is unrequited. Each *savant*, mantled in his own scholarship, answers fiercely to my arguments on the absurdity of various readings: "Your book is wrong, and mine is right." "*Du choc des opinions jaillit la verité*," says the French proverb, and I contrived to bring together a few scholars (whose manuscripts I had previously ascertained to be different,) in the vain hope that they would, at least, fall upon each other, and show me, unconsciously, their skill in critical warfare. But when hard pressed, they merely answered, "The Gypt (white man) deals hardly with us poor sons of Cham: he is a son of Japhet, has consequently four eyes: the Arabs have two eyes, and we Ethiopians are blind." There is a deeper meaning of despair and helplessness in these few words than my pen can now impart to an ardent European philologist. The same feeling pervades all Eastern Africa, and wherever I have wandered, in the vast regions drained and watered by the Nile and its tributaries, I have always heard the same remark. But to return to the learning of Abyssinia: I shall merely mention that I have taken cognizance of 140 works, besides the Bible; that 15 or 20 of these are scarcely known even in Gondar; and that there are not, in my opinion, a dozen more to be discovered. This is a slender stock for a nation which began to shine in the days of the Ptolemies. As for Ludolf's Dictionary, it requires not to be new-modelled, for the ground-work is good, and the plan admirable, but it needs several alterations, for Ludolf's Ethiopian amanuensis was evidently not a *pûwîr* (i. e. scholar) and in guessing the

meanings of many Giz words from the corresponding Greek text, sundry errors were committed. Some rules in Ludolf's Grammar are palpably incorrect. But I must waive further explanation for the present, as these would oblige me to lay down my Perry's pen, and take up my Ethiopian reed. The Giz, or sacred language, though still spoken in the *Shub a'té Quoolfee*, near Hamagen, is sadly neglected in Tigray since the days of Nadjach Walda Gabriel, son of Raj Mikael. This prince, himself a first rate poet, was the last ruler who encouraged letters; and the Gojam scholars well remember the single verse spoken in Axum by a mendicant, and which so much delighted the Dâdjazmach, that he stuffed the ragged poet's mouth with gold powder, and seated him on his own throne. But these golden days have joined the past eternity, and there is not now on the east of the Takazay a single professor capable of explaining the Old Testament. In Gondar, when I put myself under the tuition of the only learned man here, I found him literally starving. Bagemidr and Showa are still worse off; and the few students of the latter country who aim at learning are obliged to cross the Galla country, and resort to Gojam, the last strong-hold of Ethiopian literature.

The other languages of Abyssinia which, like the Giz, belong also to the Shemitic family, are the Khusy, called Tigray, south of A'ylat and the Tigray spoken east of the Takazay, on the high lands, and also in Samen, Walgayt, Bira, Wasaya, &c. I have some specimens of the latter language, otherwise slightly known by the translation of the Gospels made at Adwa.

But the most important family of Ethiopian languages is what I have named Chamitic, either on account of the traditions which ascribe their origin to Cham, or because the first of its languages which I have studied is the Khamtinga (i. e. Kham's tongue). This latter is spoken by the Khamta, or Agaws of the Way, or Wag, which is a country adjacent to, but different from Lasta. My Khamtinga vocabulary comprises 1,500 words. The language next in importance is the Awnga, spoken by the Awawa, or Agaws bordering on Little Damot. I have got upwards of 2,000 words of this harsh but copious dialect. Short vocabularies show that the Agaw languages are closely allied to the Gabi spoken by the Bileu, (probably the Blemmyi of the Romans,) and to the languages of Atala, in Simen, of Alafa, and of Kwara, or Hwara. The Hwarasa, spoken in the latter country, and by the Falocha of Gallagar, Kayla, and

of the Awawa, is illustrated by a vocabulary of 1,300 words; but having lately got a good teacher, I have begun afresh in the kindred dialect of the Gimant, which differs from the genuine Hwarasa only as much as the Basque dialect of Soule from that of Labourd.

I have vocabularies of the three principal Chamitic languages of great Damot; namely, Sidama, 1,700 words; Dawroos, 1,500; and Yamma, or Yangara, 1,400. The Gonga language, spoken on both sides of the Abay, is closely allied to the Sidama. A collection of 400 words induces me to place, also, side by side with the Sidama the Shay language, spoken by the Gimira, Gamrow, or Gamarou, a nation but little known and whose name, written in the Arabic character, has given rise to the fabulous mountains of the Moon—Djalal el Gamr; that is, mountains of the Gamrou. The Nao language appears a mere dialect of the Shay, and that of Hadiya Wanbe is in close contact with the Dawroos tongue.

The Amhara family is remarkable for its ground-work of Shemitic expressions, and its Chamitic Grammar. Signor Giuseppe Sapeto having collected an extensive Amhara vocabulary, I had little else to do besides buying the two or three Amharna works extant. My vocabularies of the members of the Amhara family are lamentably small; but I can affirm the relation of the Ada'ri spoken in Hararge; of the Tambaro, spoken near Koullo; of the Damot, and of the language of Argoubba. The other languages which I have classed in this family from mere hearsay, are those of the Gofat, of Wardj, Damou Ouba (?), Ourbarga, Aymallal, Innamour, Chachouga, Manzi, Allichou, and Abaho.

The A'far family is a mixture of Shemitic and Amharna words and forms on a Chamitic ground-work; and, like most mixed languages, it is daily increasing in importance, and menaces to swallow up, not only the Chamitic, but even the Amhara languages. The principal members of the A'far family are the A'far proper, spoken by the Adai'l, Taltal, Telfen, &c; the Saho, spoken by the Hazaorta and Torona; the Szomalied, spoken by the Szomal; Ilmorma, by the Orme or Ormo, better known under the name of Galla; and the Toufte, spoken by a small nation near the Tambaro, and issued, according to their own traditions, from the same ancestors as the Orme. My vocabularies of the A'far family are, A'far, 900; Saho, 1,400; Ilmorma 2,300; Szomali 600; and Toufte, 10, which last is only better than nothing at all.

Two hundred words of the Bidja language, spoken at Sawakin, and

40 of the Barea spoken by the Samin negroes near the Takazay, are not sufficient to pronounce on the proper place of dialects which have always seemed, at least politically, disconnected with Abyssinia.

My specimens of the Negro tongues are trifling; namely, Gwinza 400 words; Souro 19; Dokko, 29; Yambo, 30; and Gamo, 10. The other negroes bordering on Ethiopia and speaking, as it is said, distinct languages are the Gabutou, Danka, Fa-zoglo, Shilook, Djanga, Nouba, Goumis, Barta, Hamadj, Agoudi, and the Arouro, who live in the islands of lake Abbole, on the east of Walamo, or Walahayta. As for the Konfal, who live between Kwara and the Awawa, I have no sample beyond the first ten numbers, which are partly Giz; and the all but unknown Konfal tribes are the most perfect medium between the straight-nosed Ethiopian and the grovelling Negro. Although the learned Pritchard has striven to prove the unity of origin between Negroes and Caucasians, I did not feel myself satisfied with his reasons; and the desire of throwing more light on this obscure but interesting subject, was one of the principal incentives which urged me into the heart of the African continent. I have now come, on personal observation, to the same conclusion as Pritchard; and, if I am ever doomed to return to Europe, nothing will give me more pleasure than adding my slender stock of philological and physical observations to prove that community of origin which revelation teaches, but which science has often doubted.

Anthony d' Abbadie.

P. S.—I forgot to mention that the letter sent to Dadjach Goshoo, by Abba Bagibo, king of Inarya and Limmoo, is, and probably long will remain, a mystery. The facts of the case are too long to be detailed at present. The hope of elucidating this unknown character was one of the prominent objects of my voyage to Inarya and Kafa. I am now satisfied that it is neither Ilmorma writing nor a hoax of Abba Bagibo. Wonders cease when viewed closely: the men with dog's heads, which all Ethiopians believe to exist near Kafa, vanished as I approached the mysterious spot; the Dokko pigmies grew up to the stature of five feet when the eye, and not the ear, was called to bear witness; but the mysterious handwriting sent from Inarya is buried in greater obscurity than ever, and we can only add the quotation of your immortal Bruce,—Δόξυη αἰεὶ φέρεί τι καίνον.

Athenæum. No. 911.

Art. VIII.—*Extracts from the Proceedings of the Society.*

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held, in the Library Rooms, on the 10th of October, 1844.

The Hon'ble J. H. Crawford, President in the chair.

Read and approved the minutes of last meeting.

The following gentlemen were proposed as Members, to be balloted for at the next meeting of the Society:

H. Pendock St. George Tucker, Esq. C. S., by J. Harkness, Esq., seconded by James Burnes, K. H. Vice President.

Archibald Graham, Esq., by James Burnes, K. H., seconded by the Rev. J. M. Mitchell.

Notice was then given of the following motion to be brought before the Society at their next meeting:

Proposed by Colonel Waddington, C. B., seconded by Colonel Jervis, Vice President,—

That the Bombay Branch of the Royal Asiatic Society, having the greatest confidence in General Kennedy's experience and ability, do gratefully accept his offer to prepare an amended classed catalogue, on the plan proposed by him.

The Officiating Secretary intimated, that a highly interesting paper had been received from the Secretary, Dr. Bird, containing a translation of some Hamaiyaric inscriptions from Aden and Saba, with observations on the establishment of the Christian faith in Arabia; but as light had already begun to fail, the reading of this, as well as some other business, was unavoidably postponed; and the meeting adjourned till Monday the 25th November, next, upon which day it was agreed, that th General Annual Meeting should be held.

At the Anniversary Meeting of the Society, held agreeably to rule on the last Monday of November, the 25th.

The Hon'ble J. H. Crawford, President, in the chair.

The minutes of last meeting were read and approved of.

H. Pendock St. George Tucker, Esq., C. S., and Surgeon A. Graham, proposed at last meeting, were balloted for and duly elected.

The following gentlemen were proposed as Members, to be ballotted for at the next meeting of the Society:

Captain J. M. Shortt, by L. C. C. Rivett Esq., seconded by P. W. Le'cyt, Esq: Lieut W. R. Dickinson, Engineers, by S. S. Dickinson Esq., seconded by J. P. Willoughby Esq: Frank Duncan, Esq., by J. Harkness, Esq., seconded by Rev. G. Cook.

The following motion proposed by Colonel Jervis, of which due notice had been given, was then submitted:

That the Bombay Branch of the Royal Asiatic Society, having the greatest confidence in General Kennedy's experience and ability, do gratefully accept his offer to prepare an amended classed catalogue, on the plan proposed by him, in communication with the Committee of the Society:—and having been seconded by Captain H. B. Turner, was carried by a great majority, only two votes of the members present being given against.

The Reverend J. M. Mitchell, seconded by Colonel G. R. Jervis, proposed that the meeting having before them M. D'Ochon's completed catalogue, and adverting to the great and disinterested labours of that gentleman, do record the Society's grateful sense of his services. The same was carried unanimously.

The Society then proceeded to the election of its Office bearers for the ensuing year; when the President, Vice Presidents, and Secretary were re-elected, and the following gentlemen added to the Committee:—

Captain H. B. Turner,
Reverend G. Cook, and
H. Cormack, Esq.

The following donations were laid on the Table.

To the Library.

1. Journal of the American Oriental Society, No 1. containing an Address to the Members, at the first Annual Meeting of the Society, by the President, John Pickering, Esq. of Boston: presented by C. Pickering, Esq. M. D.

2. By Government, Wight's Icones Plantarum Indiæ Orientalis.

3————ditto————Mr. Poole's further continuation of the circular orders of the Sudder Board of Revenue of the Bengal Presidency, from 1829—42 and for 1843.

4————ditto————Copy of a report on the Hon'ble Company's Botanical Garden at Calcutta.

5. By the Medical Board, Medical Topography and Statistics of the Southern Division, Madras Army.

6——————ditto——————Medical Topography and Statistics of the Province of Malabar and Canara.

7. From the Dublin Geological Society, through Professor A. B. Orlebar, Vol I, parts II,III and IV, Journal of that Society.

8——————ditto——————ditto——————accompanied by the Addresses delivered at their first anniversary meeting.

To the Museum.

1. From Government, ten ancient gold coins, found at the village of Hewli, in the Malwan Talooka; of which a notice was given by the Secretary.

2. From the Bombay Geographical Society; stuffed specimen of a Pelican, and skin of a Baboon.

3. From Lieut. C. P. Rigby, through the Bombay Geographical Society, specimens of minerals, collected in the districts of Bejapoor.

4. By J. P. Malcolmson Esq., Skeletons of fish picked up at Aden.

Read letters from the Secretary of the Royal Geographical Society, London, the Secretary of the London Horticultural Society, and from M. M. Garcian D. Tassy, acknowledging the receipt of the Society's Journal, and returning thanks for the same.

The Secretary then presented to the Society the following communications:

*1. Observations on the Mahomedan Architecture on the mosques at Cairo, illustrated by drawings; by A. B. Orlebar, Esq. M. A., Professor, Elphinstone Institution.

2. A notice on the Sowahili Calendar, and identity of its new year with that of the Parsees; by Dr. Pickering, of Boston, America.

*3. Notice by the Secretary of the Society on ten ancient Hindu gold coins, found in the Southern Concan, and presented by Government.

*4. A discourse on the object and progress of investigation into Oriental Literature and Science, by the Secretary.

The meeting then adjourned to Thursday, the 12th of December, next.

At a monthly meeting of the Bombay Branch Royal Asiatic Society, held in the Library Rooms, on Thursday, the 12th of December, 1844

James Barnes, M. D., K. H. *Vice President*, in the Chair.

The minutes of last meeting were read and approved of. Captain J. M. Shortt, Lieut. W. R. Dickinson, Engineers, and Frank Duncan Esq. proposed at last meeting, were ballotted for and duly elected.

Assistant Surgeon John Peet, proposed as a member by Dr. Morehead, and seconded by the Secretary, to be ballotted for at next meeting.

The Secretary reported to the meeting that numerous errors existed in the Society's accounts for 1844, which had been drawn up by the Librarian, and were submitted at the Anniversary Meeting of the 25th November; proposing that a corrected statement of the same should be laid before Auditors appointed by the Society, which nominated Captain H. B. Turner, S. S. Dickinson Esq. and the Secretary, to audit the accounts. A rough statement of the Society's receipts and expenditure, with an estimate of its liabilities for the year 1845, was also laid before the meeting, with proposals for diminishing the amount of expenditure on account of Newspapers, the publication of the Society's Journal, and the office establishment; which when reported on by the committee of audit, are to be brought before the next meeting of the Society. While the continuation of the Quarterly Journal seems desirable for the character and interests of the Society, the funds will not, under present circumstances be available for this expense, and connected with this subject, the Secretary submitted a proposition, "that Members of the Society be charged Rs 2. for each number of the Journal, they having the option to contribute or not as they may see fit; and that subscribers, not members, pay for the same at the rate of Rupees 2. 8. The meeting directed that due notice of this be given in the next monthly circular, calling a meeting of the Society, along with the proposition for diminishing a portion of the sum now expended on account of Newspapers.

The Secretary reported that the subscription collected for the Malcolmson Gold Medal, amounts to Rupees 830; and recommended that, as this seems insufficient for carrying into effect the Society's resolution, "*of granting annually a gold medal to the author of the best paper on the Natural Philosophy and Literature of India,*" the subscription list should be further circulated among the friends of the late Dr. Malcolmson. Connected with the annual distribution of the Society's gold medal, the meeting resolved that the subject for the first gold medal is to be, "*The Historical connexion with India of the Bactrian*

Parthian, and Sassanian Kingdoms, and the influence which this connexion produced on Hindu Literature and Mythology. Essays on this are to be forwarded to the Secretary before the 31st October, next, accompanied by a sealed packet, containing the name of the author, to be opened by a Committee of the Society appointed to determine the merits of the respective essays.

The following donations were laid on the table:

1. An elaborate series of Magnetic and Meteorological observations for 1842, and 1843, made at the Colaba Observatory by Dr. Buist. In this are given the reading of several Barometers, in reference to the Maximum and Minimum of pressure, as recorded throughout the year, accompanied by Registers of the standard Thermometer, day and wet bulb, direction and force of the wind, the fall of rain &c., pointing out the chief peculiarities of climate between the Tropics, and particularly that of Bombay.

2. A Voyage round the world, and visits to various foreign countries in the United States Frigate Columbia, under Commodore Read, presented by the author, the Rev. Fitch W. Taylor, Chaplain to the vessel.

3. The North British Review, Nos. 1 and 2, by the Rev. Dr. Wilson, Honorary President of the Society.

The Secretary was directed to return the thanks of the Society to the various donors, and the meeting adjourned to Thursday, the 9th of January, 1845.

JOURNAL

OF THE

BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

JULY, 1845.

I.—*Some Observations on the Geology of the Egyptian Desert*; by A. B. Orlebar, M. A.

Immediately south of the town of Cairo, the Mukattim hills present a section which represents the structure of the whole desert as far as I examined it; and here the total absence of vegetation enables one, at a single glance, fully to observe the arrangement of the various beds of which the Egyptian Desert is composed. The lowest beds consist of a dazzling white limestone, which is capped by a yellow variety; and superposed on the yellow limestone, on the east side of the landscape, rises a red hill which is formed of various sands and sandstones, in which some red beds give a colour to the whole. In general, the beds may be said to be horizontal; but their stratification is undulatory, in bold sweeps, which the nakedness of the land enables the geologist to see in frequent sections. The red hill, above referred to, rises to a considerable height, but in general, the sandstones are imperfectly developed. They seem, however, to have furnished the fine quartzoze sand, which overlies the limestones, sometimes to the depth of a foot or more, and which, driven about by the wind, is so annoying to the traveller.

No district can present greater facilities for geological research than the

Desert, and we need not here conjecture any law of superposition, as the mind has little to do; for if the eye be active, every observation must be a theory and every theory a fact. Those who have labored to trace out the strata in cultivated or jungle countries will appreciate these remarks, if they but turn their attention to Egypt.

I shall now describe, *seriatim*, the three formations, viz. white *limestone*, *yellow limestone*, and *sandstone*.

White Limestone.

The appearance of this rock is very much that of the chalk but it does not soil. It is sufficiently hard to be made use of for building, but is very soft and easily broken, being composed of minute uncrystallized particles of lime.

The most marked characteristic of the rock is the abundance of nummulites, which seemed to me to be larger in the lower beds than in the upper. The *neritina grandis* is also very common, as is the *clypeaster varians*, and fossil crabs of the genus *carpilius*. The rock in many parts is wormed through and through by cylindrical bodies, which I take to be branching coral. The fossils in this formation are very numerous and well preserved, the shells having only lost their colour. I found no bones, but a piece of dicotyledonous wood, with central pith and seven concentric rings.

Its thickness must be very great; for beyond the spot where travellers are usually taken to visit the fossil forest, the Pasha (March 1844) was sinking a shaft in search of coal, and they had then sunk 328 feet through the formation.

The beds of white limestone are parted by beds or seams of black clay. In the Pasha's shaft there were three such beds, the uppermost twenty feet thick, the next eighteen, and the lowest ten feet. In one of these clay-seams, in the Mukattim hills, there were many arborescent iron markings between the dry laminated strata.

The Pasha was induced to sink this shaft after the discovery of a black mineral, which his Officers, (but not his professed mineralogist, who unsuccessfully endeavoured to undeceive the Officer who conducted this vain speculation,) have supposed to be coal. It is mineral pitch, and coats the fossils in a very curious manner, making a black and white rock. I found some crystals of carbonate of lime at the mouth of the same shaft:

and also some of the lower rock, which contains sulphur, and blackens on exposure to the atmosphere. I found no where in this rock any other mineral, or pebble, or imbedded fragment.

It is extensively quarried for building. The pyramids are built on and of it, except the casings of the principal chambers.

Yellow Limestone.

This is a thin formation, not exceeding 60 feet at the most in thickness. It is much more rich in fossils than the white beds, but they are by no means so well preserved. Casts only remain in most cases, particularly in the harder beds. In the softer beds, they are much better preserved; and in the lower part of this series there are partings of black and of yellow clay, and in the upper part the lime is intermixed with quartzose particles.

The yellow limestone also contains nummulites, but they are smaller in its lower beds than in the white limestone, and disappear altogether in the upper beds.

The series of beds are very strongly marked off by characteristic fossils, which are much better grouped than in the white beds. One of the lowest beds contains a vast quantity of coral, belonging to the genus *eschara*, with fragments and spines of *echinida*. Another a little above it has *anomia placunoides* in situ, with bone of a *mammalia!* Higher up is an oyster bed. *Turitella egyptiaca* is quite characteristic of another, and *Cerithi* a characterize a higher one. The highest fossiliferous bed in the Mukattim hills abounded with very large *solens* like the common razor shell. The highest fossiliferous bed, a few miles N. E. of the middle station, is formed of oysters, *pectens*, *anomias* and *scutellas*, upon which barnacles are fixed, all heaped confusedly together in vast numbers. The same bed may easily be studied just behind the third station.

The fossils in the softer beds, particularly the corals, are sometimes coated with rust.

The uppermost bed, are *unfossiliferous* and abound in common salt and gypsum. The gypsum is fibrous, and in thin seams. The salt frequently reddens the soil, and being washed down the tali of little hills by the rains, gives the whole of them a red tint, which is not unpleasing in the general yellow hue of the desert landscape, but deceives the geologist, at first sight, with the expectation of finding a distinct formation.

Sandstone.

The structure of this rock is very various, although its sole mineral constituent is quartz. It forms the whole of the red hill near Cairo, where it may be studied with great advantage. In some parts it is a light yellow sand, in others a hard black rock, in others a conglomerate, in another a compact white quartz rock; and frequently it has a red tinge. The brown Egyptian pebbles belong to one of its conglomerate forms.

The well known fossil trees lie in this sandstone, which is found overlying the yellow limestone throughout the desert.

The stratification of the red hill at Cairo is horizontal, but in the centre of it there is a white quartz rock, which is extensively quarried. At first sight this quartz rock appears an immense eruptive mass; but, on nearer approach, it is found to contain rolled pebbles; the lines of which are continued into softer sandstones, which lie against the quartz rock as a mound of earth thrown up against a wall. There can then be no doubt but that the whole extent of each of these lines of pebbles has been deposited at the same time; consequently the softer portions are the deposition in its original state, and the original sand has then undergone some action, in a vertical direction, which has metamorphosed vertical portions into a compact quartz rock.

No shells or fossils of any kind, but silicified wood, could be discovered in any locality of this sandstone, which I examined carefully for some distance south-wards of Cairo, as well as along and about the road from Cairo to Suez.

The superposition of this sandstone upon the yellow limestone is very easily seen, on the angle of the hill towards Cairo, by clearing away the rubbish a little. A little spur from the main hill is capped by the black sandstone; under this is the salt and gypsum deposit; and then come the upper beds of the limestone in their descending order. The same may be traced, although not with equal facility, all around the western base of the hill.

The superposition may be also easily seen, under the hills which appear to the northeast of the middle station, at the locality where I found so rich a bed of *pecten* and *scutella*.

Along the usual road to the fossil forest, this sandstone lies in such a manner, at the base of the hills, as to have the appearance of a dyke burst

through the limestones. Its structure however, the geological character of the red hill, and every positive evidence which can be alledged as to its nature, prove that it cannot be of volcanic origin as has been supposed by travellers.

The red hill contains no fossils of any kind, but the sandstone of the same character, near the middle station, contains fragments of trees; and all the trees of the fossil forest lie in a sand of the same description.

It is necessary to recollect that the stratification of the limestone is undulatory, and the surface of the whole country is therefore naturally diversified with alternate elevations and depressions, which may be easily traced by the eye, in this barren land, however much the sides of the elevations may be worn into cliffs by the torrents. At the extreme height of these elevations, fragments of the hard black sandstone and of fossil wood are almost always to be found. The lowest depressions are filled to some depth with sand, in which lie the trees which are so generally visited. This sand differs in nothing from the sand of the red hill. It frequently abounds with brown pebbles, which are often carried away and are well known as Egyptian pebbles. Around the trees, the sand is frequently of a red colour; and, a few inches below the surface, was quite moist in March, after rains had fallen about a month previously.

The trees are silicified, and have entirely lost all structure except the external shape of the tree, and some appearance of concentric rings. The trunks are of great length; and the mensurements of those taken were 52, 57, 65, and 68 feet. Their girth is hardly proportionate; as trees of 52 and those of 68 feet were each only eighteen inches diameter. Knots are rare upon the trunks, and still less frequently are branches to be found. Those however, which do occur, are quite sufficient to prove that these trees belong neither to the *Palmæ* nor to the *Coniferæ*.

The trunks are divided transversely into segments; so, that it would be impossible to stir one from its position except in fragments.

The trees are all prostrate, and lie in every direction of the compass: I am informed that some are to be found upright, but I doubt this. I was taken to one said to be upright, and having with me labourers to remove the sand, in order to ascertain in what soil the trees grew and the character of their roots, I had all the sand removed and the specimen sufficiently exposed. I thus discovered that it was the lower part of a trunk with the roots; but broken off about an equal distance from the

centre of the trunk, and forming in fact a circular base of about four feet radius to the trunk, just such a mass as an elm torn up in a high wind. This however proved that the tree is not a palm; for the roots of palms are mere clusters of long thin fibres, little better than the base of a mushroom; and the Egyptian fossil had the fine spreading thick roots of a modern forest tree. Further it was evident that the tree had not grown in the sand in which it was standing, for if it had, the roots would not, as they were, have been broken. The conclusion unavoidably made was that it had been torn up by wind in some distant locality; and being carried thence by a stream was left astrand in the place where it is now to be seen.

I could discover no trace in the trees, of boring animals, as *solens*, &c. nor could I find any mark of barnacles upon them.

The trees are to be found in every undenuded spot between Cairo and Suez, and also may be traced I understand as far as Thebes: so that there is every reason to believe this sandstone formation has covered the yellow limestone in the vast rectangular space comprised between the Delta, the Nile, the parallel of Thebes and the Red Sea.

General Considerations.

The three formations above described constitute but one system, for although they are very distinct from each other yet they also pass easily one into the other. The white limestone is parted by beds of bituminous marle, which also parts the lower beds of the yellow limestone; and losing its bitumen and blackness, the marle becomes yellow and more aluminous, till the marles giving place to limestone, in which quartzose particles become more abundant, the limestone altogether disappears and gives place to sand entirely. In like manner there is a connection in organic remains. Dicotyledonous wood is found in the white limestone as well as in the sandstone. The nummulites gradually decrease in size from the lower beds of the white to the upper of the yellow limestone. The remains indeed of the white limestone are in general of larger proportions than those of the upper formation. For instance the *neritina grandis* is of immense dimensions for a *neritina*; and so also the crab large in proportion to its congeners. The *cardita intermedia* also seems to be larger in the lower than in the upper formations; yet the remains are all marine (except the bones and the wood), and the great proportion of shells are common

to both; so that the same animals appear to have existed throughout, but in a decreasing temperature as the deposits were successively made; if it be admitted that the same form of animal life inhabits larger bodies under higher temperature.

The animals are none of them inhabitants of deep sea. The crab belongs to a genus (*carpilius*) which frequents the sea shore, and so also does the *neritina*. But if any of the deposits were made in a deep sea we should suppose the deep white limestone was *that* one; and certainly not the beds of the yellow limestone, which gradually and almost imperceptibly seem to have changed into sandy *dunes* where the tide or flood deposited the great trunks of trees on dry land uninhabited by any shell fish.

But I am inclined to believe that the ancient owners of the white limestone fossil did not dwell in the localities where we now find them. The white limestone is, in many localities, full of long tubes branching in all directions, which one can refer to nothing but the branching coral which is only found where the tide never exposes it to the atmosphere. The white limestone was therefore probably formed in deepish water; but neither the *neritina* nor the crab could have lived in deep water, nor in a tanglement of coral. The *neritina* more probably lived on the surface of rocks, and the crab used to lie in wait for his prey in their fissures, where he spread out his *great greedy pincers*, resting himself comfortably against the uneven sides of the rock clefts by help of the protuberances at the back of his test. But no such rocks could have existed here at a time when there was nothing but a loose floor of lime particles continually depositing. This was not the place then for them to have originally inhabited; and in fact it seems to have been only their grave yard: for if they were not produced here, they must evidently have been buried.

The crabs are always uninjured in the quarries, every member remaining perfect. Now if a live crab is suddenly immersed in any thing which he does not like, he throws away some of his limbs: these crabs therefore must have died in a natural and easy manner. This may also be inferred from the natural manner in which they have folded up their pincers, and spread out their legs, and shut down their eyes in the sockets. As soon as a crab is dead, he is generally pounced upon and made a meal of by some wading bird or some other genus of the crab class; a hole being thus picked in him and the specimen mutilated. Now that waders did

exist long before such a crab as this in the world is admitted, and therefore it is extremely improbable that such numbers as those in the Cairo quarries could have escaped a wader, even supposing that there was no species of carniverous *brachyura* or *macroura* in the neighbourhood, or that our crab was not of a cannibal disposition, both which suppositions are rather impossible. He must therefore have been quickly carried away from the place of death to his present locality. The agent which carried the crabs to the Cairo quarry, did not treat them with great gentleness, for all the specimens are much broken in the weaker parts, as the lower portions of the *carapace*; and this is to be observed in the shells of the *neritina* also. Lastly they must soon have been buried, for if not they would most probably have soon fallen to pieces, and certainly would have been knocked against one another and coral, and been much more seriously injured than they have been. The evidence appears therefore to be conclusive that the *neritina* and the crab inhabited rocky spots at a distance from Cairo, where they were carried by a current, and lime rapidly deposited around. This rapid deposition of lime may have been connected with a flow of bitumen at the bottom of the sea.

Every sea-shore is naturally divided into zoological districts according to the distribution of mud, sand, and rock, and according to depth of water. Wanderers are occasionally found straying out of their proper limits, but in general each species is restricted within very narrow bounds. The arrangement on a shore is sand, and then mud or clay. The sand is frequently composed almost entirely of shells. Now such is the order of the yellow limestone; for clay abounds at the bottom, sand at the top, and throughout the debri of shells has formed a limestone. Not that the shells are the exclusive source of all the limestone; for by some process or other, lime seems to have been disengaged from the waters of the sea, which added their quota to the deposits of limestone beds, and this deposition seems to have been the principal source of the whole beds. The series therefore indicates a gradual shallowing of the water, and consequently the vertical section, which the geologist now examines, tells him how the superficial surface of the ancient shore must have been mapped out, when the formative causes of the Egyptian limestone were narrowing the limits of the ancient sea. Beyond the limits where the large branching corals were rising in deep water above the lime, which precipitated around them, and was entombing the remains of *crabs*, *neritinæ*, and *various mollusca*, which a stray current drifted

among them, grew one of a genus of coral (*eschara*), whose modern types grow on rocks even under water, but generally exposed to strong currents. Beyond this was a bed of oysters. Next a bed of large turritted shells, much of the same character as the large *Proto* of our own coasts. Then crowds of *pleurotomæ*, associated with *cerithia*, apparently occupying much the position of the *cerithia* which abound both on our rocks, and in our mud, at such a low depth that they may often be exposed to the fresh air by the retiring tide. Lastly *pectens*, *scutellæ*, and *anomiæ* were washed on a shell beach from deeper positions. These are all shells of deepish water, and any one who has studied a modern beach, knows how constantly these large flat shells are washed on shore. We have already noticed that the *anomia* appears to have two localities; one is its beach or burying place, the other is its living locality; and we do not doubt but that more careful search will find deep sea localities for the *pectens* and *scutellæ*. Consequently we now see the following order of superposition: the upper strata of the yellow limestone is a shell beach, formed by the spring tides only, washing thereon more particularly the large flat *biraleæ*; next, the strata of the beach left dry at ordinary tides, inhabited by *pleurotomæ* and *cerithia*. The next strata are parts of the coast left dry but for a short time, and inhabited by large *turritellæ*. Next an oyster bed, and next a bed of *anomiæ*, in deep water. Then a growth of coral, left uncovered only at spring tides, and then we come to deep water, where the tides washed many of the inhabitants of the coast regions.

I consider therefore the yellow limestone to have been the *habitat* of the primæval inhabitants of Egypt; and that the locality where the *neritina* and crab lived, will be probably found on the primitive rocks near Thebes, upon which the nummulitic limestone probably abuts.

The sea was continually retreating northwards from the neighbourhood of Thebes; and, as it shallowed, formed great salt pans, in which it deposited its salt, viz. common salt and sulphate of lime. Hence the upper beds of the formation abound in these minerals.

The origin of the sand and brown Egyptian pebbles, is probably to be sought in the mountains of upper Egypt or of Abyssinia: for following up the ideas ventured above, I should conclude that the *dunes* of sands have advanced from the south, following upon and filling up the salt marshes which the shallowing sea left.

The hard quartz rock, in the heart of the mound of sand now called the

Red Hill, may be the agglutination of the quartzose particles, by a siliceous spring of warm water; and a similar spring may have formed the appearance of a dyke along the fossil forest road. Such springs moreover may have poured out hot water over the whole surface of the country and silicified the trunks of trees.

The existence of a potent subterraneous heat at that time is rendered probable by the large size of many of the fossils before noticed: for it does not seem possible to account for a heat in the sea, sufficient to silicify them except it were fed by hot springs. The dissemination of bitumen in the lower beds of the white limestone may be connected with this unusual heat.

Although we have then a sufficient agent to silicify the trees, we have a difficulty in bringing them to their locality. That they were silicified in their present positions appears from the fact, that of the silicifying agent having divided them transversely, and as they certainly did not grow there, they must then have been transferred by water. They could never have been submerged in a sea, where *solens* abounded, without having been penetrated by them, and they could not have remained on a sea beach for any length of time, where *balani*, and *flustra* attached themselves to *pectens* and other marine bodies, without being also incrusted more or less by the same animal. Yet it must have been a powerful current which transported such large trunks, and that current was not the current of a river: for we cannot imagine ever to have been on earth a river stream whose breadth is a measure from the Red Sea to the Nile at least. Moreover, there is no trace of a river action on the nummulitic limestone. The trunks must then have been swept from their place of growth by the ocean, and by a rapid flood which swiftly drove the *dunes* of sand, and debris of the ancient forests, over the salt pans and dry beaches of the retreating sea.

The sea must have been gradually retreating owing to the greater depths quickly filling up by a deposit of lime. Perhaps in twenty years it might have filled up from the parallel of Thebes to that of Cairo, while a mighty flood overthrew the forests of the ancient African continent, broke in pieces its eternal rocks, and drove the debris of all down into the vast extent of low salt marshes which the sea had left.

The circumstances of the crab prove an unusually rapid deposition of lime, and consequently an unusually rapid filling up of sea, and advance of the usual coast, in the usual manner, on the sea, until all was filled up.

and nothing left but salt marshes. The circumstances of the fossil wood prove a subsequent unusual sea flood, in short, a deluge.

Egypt was inhabited and a kingdom three hundred years after the deluge of Noah. A shorter time than this would have been sufficient to drain off the waters of the deluge, and by that drainage to have hollowed the valley of the Nile and formed its fertile plain. Our geological facts then perfectly agree with the Bible history; for it is certain that a great flood was the last geological event in Egypt, and this affords additional evidence to the truth of the Bible record.

The nummulitic limestone, therefore, was in progress of formation a little before the flood, and might have commenced but a few years before. As it is clear that there was nothing miraculous or unusual in its formation, the length of time will entirely depend upon the amount of lime precipitated and the time requisite for this, and the time necessary for the multiplication of nummulites, of which creature the great mass of the stone is composed.

Relation of the Egyptian to other formations.

If then Egypt has really afforded us the means of connecting history with geology, we have a fixed point to which we may endeavour to connect other formations, and thus perhaps, step by step, to trace back the history of our earth.

First. With regard to the nummulitic limestone. It is found in Cutch and Sindh, in Lombardy, and in the Grecian islands, and I believe also in Spain. In all these localities it has been referred either to the upper members of the chalk, to the tertiary, or to some intermediate formation between the secondary and tertiary series. Now, with regard to the chalk, it does seem, in its general character, to be a deposition of much the same character as we have found the lower nummulitic limestone, namely, a rapid deposition in a deep sea. And with regard to the marine tertiary strata, they seem to indicate the same changes as the upper nummulitic limestone of Egypt; viz. the gradual recession of the sea from its shores. There are no doubt strong objections against the identification of the chalk with the lower nummulitic limestone and of the whole range of *eocene*, *meiocene*, and *pleiocene* formations with the upper beds; and I merely wish to suggest the possibility of this view being correct.

With regard to the identification of the nummulitic limestone of India

with that of Egypt I have no doubt. In the description of fossils, several instances of the same being found both in Cutch and Sindh are specified. But I think that it would be premature to do more than to urge exertion in procuring more specimens from both Egypt and India for our Museum, and in collecting further facts: as we are in an admirable position between the two countries to establish the negative or affirmative of the assertion.

Having examined the nummulitic limestone about Verona, I feel no hesitation on the identification of the Lombardy with the Egyptian formation; but I am not able to refer to the work of the Italian Geologist who has described those formations. The nummulitic limestone of the Grecian Islands has been recently investigated by an English Geologist.

From the specimens brought from the great Sahara, by Captain Lyon, Dr. Buckland concluded that the greater part of the desert was an equivalent of the new red sandstone supporting patches of tertiary beds; and on the same grounds it has been generally imagined that the whole of that great salt bed, stretching from the Atlantic to the Himalaya, including the deserts of Africa, of Arabia, and of Persia, is new red sandstone. The accounts of travellers seem to establish the idea that they are all of the same character; and their geographical relations warrant the supposition, that this chain of salt desert has originated in the same geological events. The account above given of the salt and gypsum deposits shews, why Dr. Buckland erred in assigning so early an age as the new red sandstone to the desert formations; and Captain Lyon's specimens of tertiary shells were doubtless from the same nummulitic formation as the salt and gypsum. This extends the nummulitic limestone and the shallowing ante-diluvial sea to the Atlantic; and, again to the eastward of our researches, into Arabia and Persia, and thus connects the Egyptian directly with the Cutch *beds*, and with those of the Indus.

This great sea had then a southern boundary probably in the central mountains of Africa, or about the line of the Niger. Its northern boundary was the line of the Pyrenees, the Alps, the Balkan, the mountains of Armenia, and the central chain of India. The notices which have appeared of Mr. Murchison's investigations in Russia would, combined with our previous knowledge, seem to say that a great sea prevailed over northern Europe, so that the habitable continent, in ante-diluvial times, consisted of a long ridge from Cape Finisterre through Auvergne, Swit-

erland, Hungary, on to central Asia. From the reported state of India itself, it would appear that it was then also a peninsula. The lakes and coal beds of the Nerbudda probably belonged to that period, and the fossils of Perim and of the Sevalik hills, prove the existence of large continental animals living in watery places: whilst on the other hand, the marine fossils at Mandoo on the one side, and on our East coast on the other side of the peninsula, prove that its dimensions were then much smaller than they now are.

It seems to me that we have then within the limits of our research, the possibility of mapping out and ascertaining the geography of the old world previous to the flood, and the nature of that great catastrophe. We may do much in India, to carry this into effect; and with the hopes of moving the spirit of research, which has been for years employed in unveiling the physical state of the peninsula, I offer these remarks. My theory may be quite wrong but it is drawn from many facts and is plausible. Let the whole country from the lakes, south of the Nerbudda to the Indus, and the deposits from the Ganges to Cape Comorin, be well examined; and India is likely to afford as valuable a contribution to the history of the whole peopling of the Earth in *praedimate* and *praediluvial* times, as Egypt or Russia.

The fossils which I collected, together with contributions from Major Twemlow, Dr. Heddle, Mrs. Barr, Dr. Pigou, and Dr. Stevenson, are deposited in our Museum: and, as I can find leisure, I shall publish, lithographs * of these together with those from Sindh and Cutch which have not been already published.

CEPHALOPODA. *Clymene. Pl. iv. fig.* 1.

The genus Clymene is separated by count Munster from the Nautilus, on account of the position of the syphon, which in this genus is ventral, in the Nautilus central, and in the Ammonites and Goniates dorsal.

Count Munster says, that he has not found this genus in any formation of later date than transition limestone. *Annales des Sciences, August,* 1834.

* The Society having kindly permitted me, I shall deposit these lithographs with the librarian at such a price as will cover the expense of publication. The limited means of the Society will not allow it to hazard the expense of the illustrative lithographs

He enumerates 14 species, from all of which this differs in the *long* lateral lobes of the saddle-shaped chambers.

TRACHELOPODA. *Plates i. ii. iii.*

1. *Conus.* This very minute cast occurs in the yellow limestone.

2. *Tornatella.* From the same place. Its spire is more depressed than most genera of this species. But I can refer it to no other genus.

4. *Buccinum.* Spire turrited. Longitudinally striated. Yellow limestone.

5. *Buccinum.* Whorls rounded, cancellated by transverse and longitudinal striæ. Yellow limestone.

Cyprea depressa. I should not have identified the Egyptian specimen with the Cutch, had I not been favored by Mr. Leith with a specimen from Sindh, by which all doubts as to identification were removed.

7. *Buccinum.* A cast from the white limestone. It occurs also in Sindh; Mr. L.'s specimens. It is not unlike Eburna spirata.

6. *Eburna.* An internal cast from the white limestone. The aperture of this species is much narrower than that of the modern.

8. *Strombus.* White limestone.

12. *a, b. Murex Smithii.* The two specimens from Egypt, figured by me, agree with *Murex Smithii* in every respect, but the variety *a*, has a more elevated spire; the variety *b*, has a more depressed spire than M. *Smithii* as figured by Sowerby: *Plate d,lxxviii min. chon.* But according to that author, the species is very inconstant in this character; and this removes every objection to referring the Egyptian to this species which occurs in the London clay. The species of the London clay *mollusca* appear to be very inconstant in their character. Indeed they have all much the appearance of hybrids. This *murex* has much the character of *pyrula spirellus*, (Lamarck) differing from it only in having three instead of two knotted bands on its whorls, so that it seems to be a connecting link between the two genera. Lamarck's definition would have classed it as a *pyrula.*

b. is a broken specimen shewing the interior, and also the tail which has marks of plicæ.

14. *Pyrula.* Upper strata of the yellow limestone. If this is not a cast of *pyrula verspertilio*, it is very closely allied to it.

13. *Turbinella.* If not *T. cornegera* it is closely allied to it. It is a

mere cast from the white limestone; but it shows 4 strong laternal plicæ and its oval turbinated shape is very marked as well as the narrowness of the aperture.

11. *Pleurotoma Egyptiaca.* The character of this shell approaches so much to more than one species of the London clay, that I unhesitatingly refer it to their alliance. But it has only a family likeness to those specimens which I possess. It is very abundant in one of the upper strata of the yellow limestone, the rock being almost composed of it and *cerithia.*

9. 10, *a*, *b*. *Cerithium tricarinatum.* I can discover no difference between the specimens of the *Cerithium tricarinatum* and the species which groups upon the Bombay high water rocks. This last is a most variable shell. It is sometimes very tapering, as the *C. tricarinatum* of the London clay. Sometimes very stumpy, as the *Buccinum granulatum* and propinquum of the crag. Sometimes it is without, and sometimes it has *highly developed* the peculiar expansion near the outer lip; the extension of which up the spire gives the *cerithium* somewhat of the peculiarity of the *murex*. Hence I identify the two Egyptian specimens with our Bombay species and that with the *cerithium tricarinatum* of the London clay and *Buccinum propinquum* of the crag.

Spec. Char. Turritted, transversely streaked, three rows of granules on each whorl.

17. *Turritella conoidea.* I refer the Egyptian to the London clay specimen, although it may not be the same. The Egyptian specimen is abundant in the yellow limestone, and its shape agrees better with *conoidea* than with *elongata*. Although Mr. Sowerby expresses much doubt as to the accuracy of the distinctions received between the species, yet there can be no doubt that the Egyptian specimen must be classed with the *conoidea and elongata*, to whichever of the two it may be referred. My specimens agree better with the *conoidea*. It is difficult to get a view of the outer shell, but from the one figured at *b*, it appears that the whorl has 7 principal *striæ* and there may have been other smaller *striæ*.

16. *Turritella Egyptiaca.* Abundant in one of the middle strata in the yellow limestone. It is much like *T. assimilis* of Cutch, but differs in the number of threads, which in my specimens are uniformly four in the upper, increasing to five lower whorls. The angle at which the whorls taper is by no means uniform. It is frequently a very blunt shell.

18. *Cirrus.* A common internal cast in the yellow limestone. But it

is quite vain to decide even upon its genus until a cast or specimen of the exterior is found; for the genera of *cirrus*, *euomphalus*, and many of the *turbos*, appear to have internal casts exactly alike. The globulus (Grant's Catch, pl. XXVI. fig. 4.) I conceive to be the same: for I found a great variety of casts in character passing into one another, from figs. 21 to 18. I am much inclined to refer fig. 20 to the same species, although this may be a young *ampullaria*.

19. *Ampullaria*. A cast from the yellow limestone.

15. *Neritina grandis*. The figure of this by Sowerby, in Col. Grant's paper on the Geology of Cutch, might have been supposed to have been taken from one of my Egyptian specimens. If I had any doubts of their identity, they must have been altogether removed by a series of specimens brought by Dr. Leith from Sindh.

As an unpracticed conchologist would hardly imagine the internal cast to be that of a *neritina*, I have given it in a different view from that in the geological transactions fig. *a*.

My specimens supply the characters hitherto deficient. The shell is very thin and patelloid in shape, the right border is crenulated, and the spire is almost obliterated. The actual spire is just broken off in my specimens; but one of Dr. Leith's specimens has in it a simple dot. As it must have been the same from the curvatures of the horizontal *stria* which are uninjured in the Egyptian specimen, I have considered myself warranted in restoring it; and I have not thought it necessary to break away the rock, and run the risk of spoiling the specimen figured *b*. in order to prove the character of the spire. This figure is of the shell shewing the internal spire, and the smallness of this perfectly agrees with the vanishing spire on the Sindh specimens.

It is a very common fossil in the white limestone quarries near Cairo.

a. Internal cast of shell below.

b. Internal shell above.

b. Shell above.

GASTEROPODA.

1. *Laplysia*. I found some small fossils which I believe were the peculiar bodies which are found in the intestines of this genus.

2. *Bulla*.

3. *Calyptra Ægyptiaca*, *Pl. iv, fig.* 3.

CONCHIFERA, *Plates v, vi, vii.*

1. *Anomia Placunoides Pl. vii.*

Flat valve. Opercula foramen, elliptic, extending to the margin.

Convex valve. Round, central, undivided, muscular impression. Two deep fossæ at the hinge, one large and the other small.

Shell very thick and large, composed of many pearly layers.

The shape of the shell is very irregular, but its normal figure appears circular. The convex valve has an external termination at the beak, very much like the hinge surface of an oyster shell.

It is to be found in great abundance, in the upper part of the yellow limestone, at the base of the Red Hill; and will be met with in a corresponding layer over various parts of the desert. Its locality near the Red Hill was pointed out to me by Mr. Malcolmson, before I went through Egypt. His specimens were without the hinge, and he consequently mistook the shell for a Placuna.

It is briefly noticed by Milne Edwards, in a note on the Placuna, and is regarded by him as a genus which connects that genus with Anomia, in a manner different from the connection which the new genus of Placunomia has established.—Both Placuna and Anomia are too little known, for any very certain distinctions to be at present laid down.

2. *Ostrea gregarea Egyptiaca.* The constant characters of this species are—1st, the absence of an ear; 2d the curvature of the shell is always towards the cicatrix; 3rd the upper valve generally flatter than the lower valve and never plaited. Its upper valve is generally very flat. The lower valve is plaited longitudinally, but the number of plaits is very uncertain. The plaits are sometimes furcated.

It differs from the *O. gregarea* (Pl. CXI min. Conch.) only in the latter having its upper valves plaited.

The *O. gregarea* is a crag shell.

Our species is abundant in one layer of the yellow limestone.

3. *Ostrea lingua Egyptiaca.* This is a more rare species occurring with the *pectens* and *scutellæ* in the upper layers of the yellow limestone. It is much like *O. lingua* of the Cutch fossils.

4. *Pecten sulcatus.* Plate v. fig. 1. This occurs in all the nummulitic limestone of Egypt, but it is to be found in greatest abundance in the upper strata of the yellow limestone. It varies much in some characters.

One given to me by Mrs. Barr, is much broader than any which I preserved; but my specimens seem to differ in no respects from the P. sulcatus of the mineral conchology, which is a common crag fossil.

P. Sowerensis of Cutch appears to be the same as the above; for some of my worn specimens agree with it in surface, and the ratio of the transverse and longitudinal diameters varies so much that the difference, between my figure and that in the Geological Transactions, cannot be considered of consequence. My figure was drawn by Mr. W. Fallon.

Pecten Complanatus Pl. vi. If this is not *p. complanatus* of the mineral conchology, it is very closely allied to it. The only specimen which I have is very much worn and is fissured; it has a small coral attached to it. The ridges therefore which are described upon *complanatus*, may very possibly be worn away to the striæ, which may be seen on our specimen.

Complanatus is another crag fossil. The locality in Egypt is with *P. sulcatus* near the middle station.

6. *Mytilus Ægyptiacus* Pl. v. figs 7.

7. *Arca Ægyptiaca* Pl. v. fig 2.

8. *Nucula Laboensis* Plate v. 9. This is found also in the nummulitic limestone of Cutch.

Cardita Intermedia. Pl. v. fig. 4. I refer my specimen to this species on the authority of Mr. Sowerby, who, in describing *Cardium intermedium* (Geolog. Trans. 2 Series Vol. V. Tab. XXIV, fig. 1,) says: "this shell, of which we have only casts, is very near in form to *Cardita intermedia* of Lamarck; the hinge as we learn from the impression, however, wants the long marginal tooth which marks the genus *cardita*." The cast (fig. c.) and the shape of the shell as given in fig. *a*, is exactly the same as the figure above referred to: so that there can be no doubt as to the identity of the Cutch and the Egyptian fossil. But one of my specimens has the impression of the long marginal tooth; so that there can be no doubt of its generic character.

The absence of all evidence to the existence of the long marginal tooth does not seem to be of so much consequence: for M. Agassiz observes, that the impression of the teeth of the hinge is among those characters which will not probably be found in impressions: (*Memoires sur les moules des monoiques p.* 8.):" and in his plate of the cast of *cardita sulcata* accordingly the hinge is not traceable.

It is found very thick in some beds of the yellow limestone, the shell being always destroyed or replaced by the limestone. It occurs also in the white limestone.

10. *Cardium Ægyptiacum Pl.* v. *fig* 8.

11. *Tellina? Ægyptiaca.*

12. *Psammobia Ægyptiaca.* Associated with the *solen* in the Mukattim hills. The same cast is also among Mr. Leith's specimens from Hyderabad in Sindh.

13. *Corbula cuspidata. Pl.* v. 3. Min. conch. Tab. 362.

Although I have only a cast, and that without a hinge, the shape of the shell seems to identify the Egyptian specimen with the English fossil; which is found with fresh water shells in some of the newest formations. There is but little difference between it and the *C. revoluta* of the London clay; and since it is an inhabitant of rocks, and subject to considerable deformations, all probably belong to one species. It is not uncommon in the yellow limestone, and a series may without any great difficulty be formed.

I can see no essential distinction between this and *C. trigonalis* of the Cutch fossils; and as this is said to differ from Lamarck's *C. rugosa* only in being wider and with more regular and prominent laminæ upon the surface, I should think that future collectors will be able to bring both from Egypt and Cutch a series, which will identify all the above species as varieties of one only. *C. rugosa* is a Paris basin shell.

14. *Corbula Lyrata Pl.* v. *fig.* 5. I think this must be the same as *C. lyrata* which is described as a *secondary* fossil from Cutch. Geol. Trans. Vol. V.

15. *Solen Ægyptiacus.* A cast of the character of *solen radiatus.* It is very abundant in one spot in the Mukattim hills, where the specimens lie in masses on one another. Some of them are a foot long. The layer belongs to the yellow limestone.

Cirripeda.

Balanus Amphimorphus. Lamarck. Pl. vi. *fig* 2. This species seems to have been considered by Lamarck an intermediate link between *B. tintinabulum and B. perforatus. B. crassus* of the M. C. (Tab LXXXIV) seems to be also identical with it. Neither does the specific

difference of *B. tesselatus* appear of much value in a genus, the species of which have peculiarly variable characters.

B. crassus and tesselatus are both crag fossils, and *B. amphimorphus* is said by Lamarck to be an Italian fossil.

The Egyptian specimen is on a *pecten* from the *great pecten locality* near the middle station.

ECHINODERMATA.

1 *Scutella subrotunda Pl.* viii. The beautiful monographs of the Echinodermata, which are now in course of publication, under the direction of M. Agassiz, enables even a tyro to speak with some confidence of a species. My specimens agree perfectly, except in two points, with the minute description of *S. subrotunda* in the monograph of Scutella. These two characters are that the *S. subrotunda* is described as having the the posterior ambulacra rather shorter, than the other three; whereas those in the Egyptian specimens seem quite equal; and the petals of the Egyptian specimen are very blunt, whereas those in M. Agassiz's figure are tapering. The correspondence of all essential characters will be seen on comparing the two figures. I have not attempted to draw the structure of the test which agrees however exactly with the European specimen, and the tubercles on the upper surface are smaller than those on the lower.

It is to be found in great numbers in the uppermost strata of the yellow limestone, with *pectens* near the middle station, and also just behind the third station bungalow near the telegraph.

The *S. subrotunda* is found in the *meiocene strata* near Bourdeaux.

a. Upper surface.

b. Half the lower surface.

c. Vertical section, shewing the thickness of the shell.

2. *Clypeaster varians Pl.* x fig. 1, 2. The characters of the Egyptian fossil seem quite sufficiently identical with the Cutch *clypeaster* (*Pl.* xxv. fig 21 Geolog. Trans. Vol. V.) to identify them specifically. In the Egyptian specimen the anus is closer to the boarder, and the vertex is a little more eccentric.

The Cutch specimen is from the nummulitic limestone; the Egyptian is from the white limestone in the Cairo quarries.

3. *Clypeaster Ægyptiacus. Pl.* ix. *fig.* 1. *a.* Anus very near the

border and transverse. Mouth central. Poreless lines from the ambulacra continued to the mouth. Height of the shell apparently not so great as in *c. varians*.

I obtained only two imperfect specimens of this from the third station. They belong to the uppermost strata of the yellow limestone.

4. *Spatangus acuminatus*. Pl. x. fig. 3, 4. This is also figured by Col. Grant as from the nummulitic limestone of Cutch. It is frequently crushed and injured. It is abundant in one strata of the yellow limestone at Cairo, with fragments of *eschara* and spines of *echinodermata*.

5. *Cidaris clurifera* ? Pl. ix. *fig.* 2. 5. These fragments are so much like *C. clurifera* which belongs to the upper part of the *calcaire neocomien* of Neufchatel, that I hesitatingly refer both the spine (fig. 5.) and the tubercle (fig. 2.) to it. It is found in the same bed at Cairo as *Spatangus acuminatus*.

4. *Cidaris Ægyptiacus*. Plate ix. fig. 4. These spines must belong to tubercles much the same as fig. 2. They are very remarkable spines, being found six inches long; but the rock in which they are, is so loose that I could carry away nothing but fragments.

5. *Gymnocidaris Ægyptiacus*. Plate 4. fig. 3. I conclude this fragment belongs to this new genus separated from *cidaris*. It might belong to *pedina*, but there are only two pores in pairs in the ambulacra. All but these two subdivisions have, I believe, large turbercles on the test, which my specimen is without. Locality, with the *spatangus acuminatus* and *cidaris*.

Crustacea.

Carpilius, Plate, xi. *Sectional and generic character*. Carapace arcuated. Plastron very narrow, epistoma rectangular and much broader than long. Third article of the jaw feet quadrilateral, without a notch externally, and not extending beyond the insertion of the fourth. External antenna situated in a fissure at the internal and lower corner of the ocular cavity. Internal antenna inserted at the internal angle of the eye to which it is contiguous. Anterior feet nearly or quite equal. Fingers not spoon shape. Posterior feet without a crest above, but rather angular.

Specific characters. Regions of the *carapace* well defined; surface mamillated and covered with minute granules, which are all over the test excepting the legs. One mamilla on each of the gastric regions; three on each

of the biliary regions; two on the genital; three triangularly disposed on the cardal; eighteen on each of the bronchial regions. Interocular space about ⅓ of the longitudinal diameter of the test, divided by a canal which is separated from each ocular cavity by two tubercles. Two tubercles at the external angle of each eye. Anterior lateral border sharp and five lobed; two lobes being opposite the biliary region, and three to the bronchial, the three hepatic lobes terminating each in three recurved spines; the posterior biliary lobe in two spines and an abortion, the anterior in two spines. The anterior border is continued posteriorly in a line of six tubercles of which the middle is small, but the most posterior is very large, and divided into one large and two small processes. Hand broad but thin, with three obscure rows of tubercles on the posterior side, moveable finger with (four or more) spines above. Arm crested posteriorly. Transverse longitudinal diameter: 16 : 9, not reckoning the breadth of the lobed border. Transverse diameter of the largest (a male individual) 3½ inches. Posterior border one inch. Interval between the external angles of the ocular orbit 1½ inch.

The figures 1, 2, 3 have been drawn and above described from comparison of 13 specimens.

Fig. 3 *a*. the eye lying in the ocular orbit.

b. the place of the external antenna.

c. the place of the internal antenna.

d. the mouth.

e. the canal in the middle between the two orbits.

It is found in great abundance in the white limestone quarries near Cairo.

PLATE XII. *Corals.* I do not venture to discuss the specific characters of these corals.

Fig 1. A species of *eschara*, very abundant in the yellow limestone and characterizing a bed. It shows the dichotomy of the branches; *b* is a magnified representation of the cells; *c* is a section of the stem.

Fig. 2. An *astræa* (very common also in the yellow limestone.)

Fig. 3. a body very common in the white limestone. They are sometimes supported on long stems, and the cup-like body is composed of many growths which have a tendency to fill it up. From the sides of a cup other cups seem to grow out. From this it seems to be a *coral*, but I could discover no trace of cells.

Fig. 4. A microscopic object in the white limestone; an elliptic body with oblong cells at the surface, penetrating a short distance into the solid mass.

Art. II.—*Cuneiform Inscriptions. Translated from the eighth volume of Ritter's Geography.*

It was Anquetil Perron, who in 1771, conveyed to Europe the remains of the Zoroastric liturgical Zend and Pehlvi books, which the Parsees of Surat had for six hundred years preserved out of their ruin. (As. Res. Vol. IV, 1 P. p. 615—619.) These he published in three volumes 4to. under the title: Zend-Avesta, Ouvrage de Zoroastre; and they were immediately republished, in a German version, with additions by I. F. Kleuker. Since that time their contents were treated in various ways; but the text remained unedited. The language continued unknown, except from the very imperfect Zend and Pehlvi vocabularies appended, often with errors, to the third volume; and there was neither grammar nor lexicon. Yet from the first there were those who conjectured that the Zend might belong to the family of the Sanskrit; but Anquetil's versions were too faulty to be of use, as he had to follow, in the interpretation of the text, his Parsee instructors, the Mobeds of Surat. They were themselves but slenderly instructed, full of the opinions of their cast, and of intentional, systematically deceptive errors.

The Zend was indeed the original idiom of the Zoroastric books, but it was on insufficient grounds that Anquetil gave this name to the above-mentioned work. This Zend text was translated, at a period unknown to us, into another language, the Pehlvi, entirely diverse from the Zend, enriched in a considerable degree from the Semitic idioms, which are far remote from the Zend. At the time when the legal and liturgical books were communicated to *that* Iran, which was devoted to the laws of Zoroaster, the Zend was by no means the only language generally known: and the modern Parsees attribute as great authority to the Pehlvi version as to the original. It is in fact easy to prove, says Burnouf, that the Pehlvi has continued for several hundred years, and even till our own day, as a learned language; it has thus far been impossible to shew a longer prevalence of the Zend. Whence the above-mentioned opinion of many, that the Zend existed, not as a popular dialect, but only as a religious language in the Zendavesta, or as a learned language; which is however contradicted by the existence of indigenous Zend appellatives, even to the present time, in the spoken tongue of certain districts.

That Pehlvi version, as Burnouf says, may have had its origin in a time when the priests still understood the Zend, but when they had to substitute the former for the people, by whom the too brief Zend was no longer intelligible. This version was therefore accompanied with a gloss, which was far more diffuse than the text: so that the Pehlvi is not sufficient of itself to give the obscure, concise, original Zend. In the Pehlvi version, which was at the same time a commentary, the knowledge of the Zend, as no longer necessary, died away, even among the priesthood. And further, the interpretation of the Zend books became exclusively the province of the Pehlvi.

This Pehlvi flourished till the time of the Sassanide dynasty; it even survived the destruction of the Zoroastric rites by the Mussulmans; but not in the case of those followers of Zoroaster, who fled to Guzerat. The poverty, the reverses, the flight of these, their three hundred years of Yesdejerd, the death of their last believing King, their beginning dispersion, their intestine, manifold divisions, all prevented this. After a hundred years of residence in Kohistan, and a flight to Ormuz, where they remained fifteen years, and to Diu, where they remained nineteen years, and after their final emigration to Guzerat, they had, in the fourteenth century, lost the copy of the Vendidad which they once possessed. One Destur Ardeshir, a learned Parsee from Sistan, came to Guzerat, and gave the priests a copy of the Vendidad in Zend, with the Pehlvi translation. From this two copies were made, and hence all the Vendidads in Zend and Pehlvi, which are extant in India.

But even the Pehlvi version underwent manifold alterations, by a Destur, or learned Parsee, of Kerman, and by his disciples. The language itself was gradually going into disuse among the Parsee priests, and had, just before Anquetil's time, been restored in a new form by this Destur, at Guzerat.

Such being the oblivion of the language, there could scarcely have been a hope of redeeming the original text from the corruptions of later hands, if there had not been discovered two other helps, as Burnouf tells us, by means of which a new critical investigation became possible. First, the analysis of the original text by the aid of the cognate Sanskrit, a language now fully developed in its grammatical character, both in regard to criticism and literature. Secondly, the tradition of the Parsees, derived from an older source than the accounts of Anquetil's instructors. These last

relate not to all the portions of the Zend, so-called, which are extant in the collection of the Vendidad, (the primitive legends and prayers,) but only to that portion of them called in Zend Yaçna, in Pehlvi *Izeshnè*, that is, Liturgy or Prayers. But these throw light on the other parts. The older source, to which allusion is made, is a manuscript in two copies of this liturgy, in Zend and in a Sanskrit version by Neriosengh, more fully brought to light from Anquetil's remains, in a very ancient original, and a modern copy. These made the critical labours of this sagacious investigator possible, and he published them under the title: *Commentaire sur le Yaçna*, thus far to half their extent; and we owe to this many of our contributions above to the geography of old Iran.

From the products of these sources however, we must carefully distinguish the results of the cuneiform inscriptions; which, in like manner, are now only beginning to be unfolded, inasmuch as the method of deciphering is not yet fully established in all its parts; as the language in which they were written, to say the least, is not yet intimately known, and as most of the copied texts are not yet accessible to general investigation, and many, unknown original inscriptions, may be lying, in the darkness of oblivion, in the furthest and most unfrequented districts of Iran, especially in eastern Persia.

Among the sure results of earlier deciphering, Burnouf reckoned, in his learned memoirs on the cuneiform inscriptions of Hamadan, the names Darius and Xerxes, found in inscriptions by Grotefend, as is sufficiently known from Heeren's celebrated ideas on the Politics and Commerce of the Nations. The name *Achæmenes* was read by St. Martin, and more exactly by Rask. The word *Kseah*, king, was deciphered, and correctly furnished with the proper vowels, by Grotefend and St. Martin; yet much was still wanting. Of five quite large cuneiform inscriptions in Niebuhr's copies only two of the shortest had as yet been attempted, and without success. Yet the name *Goschtaspa* was read by Grotefend, and more correctly *Vychtaspa* by St. Martin. The word King appeared in three different grammatical forms; but neither the grammatical construction, nor the language itself was thereby made apparent. Grotefend considered the language as Zend; St. Martin for one very nearly allied to Zend. Rask took the Zend to be the primitive language of Media. He amended two letters of the cuneiform inscription, and instead of *Achæmenes* read more correctly *Aquámnósóh* (*ahhéótschósóh* of Grotefend, *oûkhaámychyé*

of St. Martin; he read as a termination of the genitive plural from *rex*, *anam*, (viz. in *ksábyohánám*, i. e. *regum*, instead of Grotefend's *ótschão*, and St. Martin's *abad* or *amad*); and Bopp concurred, declaring the language of the Persepolitan inscriptions to be the Zend. (Jahrb. f. Wiss, Er. Dec. 1831, p. 819). Burnouf has shown how far the special interpretation of the cuneiform inscriptions then known was advanced, when as many as forty-two copies of cuneiform inscriptions appeared in the papers which the lamented Dr. Schulz collected with untiring zeal, in his journey in Kurdistan, on the lake of Van. These he collected in different places, especially in ancient Media. These, with such as were before known, have afforded the objects of the latest grammatical investigation, from which some morsels have fallen to the share of geography, as will appear in the sequel.

Cuneiform inscriptions were left by Xerxes, on the rocks of Elwend, (Alvanda,) at Hamadan, on the ancient Orontes, and on the lake Van; likewise amidst the ruins of Persepolis. All these have certain parts common, and others in which they differ; as further appears from fragments in Ouseley's collections, so that the same inscriptions are engraved at Ecbatana, (Hamadan), and at Persepolis. Little attention has thus far been paid to the imperfect ones, and only the two completest inscriptions, or rather the double inscription at the foot of Mount Elwend, (Alvanda), with the names of Darius and Xerxes, have been, especially with Burnouf, the chief objects of investigation; together with two shorter ones, one from a pillar at Murghab, near Persepolis, furnished by Morier, Ouseley, and Ker Porter, bearing the name of Cyrus; the other, the so-called inscription of Tarku at the eastern foot of Caucasus, on the western bank of the Caspian sea, which was made known by Witsen a hundred years ago, and bears the name of Arsaces. The double inscription, at the foot of Mount Elwend, (Alvanda,) is on a large block of red granite, in three rows of cuneiform characters, cut in two sunken portions; and the other, that of Xerxes, at the top. Of the three parallel rows of the Darius-inscription, the first consists of twenty lines; the second and third uniform rows, which are in different character, probably what is called the Median and Assyrian, but which are not yet known, have perhaps the same contents with the first, but in other languages, more nearly allied to the Semitic. Here it will be interesting to subjoin the deciphering which has been accomplished of the twenty lines of cuneiform writing, as a sample of the language, adding

a strictly literal translation, in order to present a picture of those monuments and times.

DARIUS INSCRIPTION.	LITERAL TRANSLATION, BY BURNOUF.
1. Bâ izrk âurmzdâ.	L'être divin Ormuzd
2. ah ômân buiôm	il le Homa excellent
3. âdâ ah âim âçmâmu	a donné ; il le ciel
4. âdâ ah mrtôhm	a donné : il l'homme
5. âdâ ahchôhâtâm	a donné ; il la nourriture
6. âdâ mrtôhâhâ	a donné à l'homme ;
7. ah dârhium khchahyôhm	il Darius roi
8. açuunch aôim	a engendré ce
9. dlunam khchahy hm	des braves Roi
10. aôim plâm	ce des braves—
11. îrmâtârm âôm	Chef ceci est
12. dâchiuch khchahyôhm	Darius roi
13. izrk khchahyôhm	divin, Roi
14. khchahyôhm ânâm	des Rois,
15. khchahyôhmôâhunâm	Roi des provinces
16. pl ôznâ nâm khchâhy	qui produisent les braves, Roi
17. khchahyôh âahâhâ buiôhâ	du monde excellent
18. izrkâha rurôh	divin, ; redoutable
19. âpôh gochtâcpahâ	protecteur de Gôchtaçpa
20. pup akhâmnôchôh.	fils Achéménide.

The meaning is : "Ormuzd, the divine being, gave the excellent Homa, (a sacred plant), he gave the heaven, he created man, he gave him his nourishment ; the begat King Darius, the king of heroes, the head of heroes. Here is (probably in reference to the sculptures near the inscription) Darius, divine King, king of kings ; King of the provinces which produce heroes ; King of the Behescht (i. e. the glorious and divine world, paradise) ; fearful protector ; Son Gustasp of the Achæmenides."

The second inscription is almost identical with this first one, except that the name of Darius is exchanged for that of Xerxes. Both stand in such an elevation and such circumstances, that they evidently belong to sculptures to which their contents have reference.

The third or cuneiform inscription on the column at Murghab, north of Persepolis, was brought to light by Morier in his first journey, and then made public by Ouseley, and more perfectly by Ker Porter, with the beautiful bas-relief above which it stands. St Martin, by his method of deciphering, read on it the name Houschousch, which he took for Oxus (Ochus); Grotefend the name Kusruesch, which he took for Cyrus. Burnouf reads the text of the whole inscription, *Adm quluch khchâhyôh*

akhâmnócoh; "This (is) Cyrus, king (of the) Achæmenides." In this inscription, *quluch* or *quruch* is Kyrus, the Greek Κῦρος, (Κόρος, in Etym. Mag. ὁ βασιλεὺς τῶν Περσῶν, ὁ Παλαιός· Ἡλίου γὰρ ἔχει τὸ ὄνομα. Κοῦρον γὰρ καλεῖν εἰώθασιν οἱ Πέρσαι τὸν ἥλιον;) from khor. This khor is contracted from Kava Hucrava, in Zend, identical with Ke Khosto, or Kai, which Zend-forms have as their common root Kava, kavi, which, in the Sanskrit, according to Wilson, means the sun. Hence, in the Sanskrit version of the Neriosengh, Kavi, the designation of the royal family, is identical with the Sun-race of the Kaianian dynasty; the title Ke being prefixed, as in Ke Khosro, Ke Custap, etc. The title under which this sun of men is worshipped, is in Zend huarē, the same as khor; but the title of the royal race descended from this divinity, is in Zend ke or kavi. Thus the race of the sun shows itself not only among the Brahmans, but the Iranians, who like the former call themselves Arians.

The beautiful figure sculptured in marble is therefore Cyrus, in honour of whom was likewise erected the sumptuous building in the valley of Murghab, of which the ruins lie scattered about. The ancient sepulchral monument in the same vicinity, (Madré-i-Suleiman, Morier and Ker Porter. p. 498), was hence pointed out by the sagacious Grotefend, as the tomb of Cyrus. In the image of Cyrus, on this column, beneath the inscription, which is entirely different from those of Darius and Xerxes at Persepolis, Burnouf finds the confirmation of the inscription itself: for it represents the apotheosis of Cyrus.

The names of Darius Hystaspes and Xerxes also receive their etymological explanation in the cuneiform inscriptions and the Zend. Darhinch, i. e. coercitor, according to Burnouf, from the Sanskrit verb dhri, Zend dere, continere. Hence Hesychius renders the word Δαρεῖος by φρόνιμος. Lassen more exactly deciphers Darhawus, hence the Hebrew דָּרְיָוֶשׁ confirming the derivation from the Zend-root dere, as found by Burnouf; "the Regulator or orderer." Lassen reads in this inscription Hystaspes, vistâçpahâ, from açva, in Zend, horse, "he who gets horses," agreeing with Burnouf, *Comm. on the Yaçna* p. cv., who compares this Vistaspa, in signification with the French écuyer, and takes it for a more ancient title in Zend, which Ammianus Marcellinus seems to give in his "Vitaxæ, id est Magistri equitum." Von Hammer, however, deduces this word from the Persian Issfehbed, from Issfeh, *Pers.* a knight, which

becomes Sipahi, and among the Anglo-Indians, *Seapoy*. Xerxes is Kshârsh of the cuneiform writing, in the Assyrian pronunciation Kshras, and by transposition (a)hu(a)erus, the Ahasuerus of the Bible, from the Zend-root ksâh, to rule, (hence k'sathra, king, and the royal caste in Sanskrit;) and, in the second half of the name, the Zend word eres, by contraction ars, i. e. pure, good; hence, "the good ruler," or the "good king."

On the sculptures of Persepolis, Darius and Xerxes are surrounded with the splendour of supreme power and glory, their great men and their whole court, and even their people; so that in the imagery, as in the inscriptions, they appear as "kings of kings, as kings of the provinces, and leaders of heroes." In the ruins of Murghab, the image of the mortal king upon the column of marble, in addition to the royal mien, accompanied by that of a celestial being with outspread wings, holding place among the Izeds, the guardian spirits of the Ormuzd-heaven, (*Ized*, Pers. *Yazata*, Zend;) among whom the superstition of Iran could place the founder of the Persian monarchy, as that of the Quirites did their Quirinus. On the Persepolitan monuments appear also the kings Darius and Xerxes, the only ones as yet certainly discovered, in forms of human majesty, with their historic accompaniments; elsewhere, however, as in the case of Cyrus at Murghab, only with symbols, which have a religious significancy, and appear to be of different origin from the genuine Persian.

The Tarku inscription is here worthy of notice on account of its geographical site at the northern foot of the Caucasus, and because it is in a cuneiform character which does not contain the simple system of the double inscription at Elwend, but consists of a mixture of characters, which seem to be compounded of three different sorts or systems of cuneiform writing, as these occur in the double inscription and on other monuments; an observation which did not escape the sagacity of Grotefend, who hence derived a doubt at an early period, as to the correctness of the copy. This has now however been removed by a second copy of the same, among the papers of Dr. Schulz; the language, therefore, no more than the character, is the old Persian. From the locality on the north-western side of the Caspian sea, St. Martin had concluded that they must concern an Armenian king of the Arsacides, who pushed his conquests of the Kheizars into their own territory, and to immortalize his victories, caused this inscription to be graven in the rock. This

seems to be confirmed by the investigation of Burnouf, who finds in it the name Akehk, which he thinks not very remote from Achek, Archak, (Arsak, or from Ἀρσάκης, i. e. Arsacide). It is here that we find the most northern limit of cuneiform writing.

Thus far has the deciphering of the cuneiform inscriptions been carried by Burnouf; but he has also been employed about the first of Niebhur's copies, a very important geographical document, inasmuch as it enumerates the people tributary to Darius. Of this, however, he touches only in passing, on some of the names, so far as to criticise and make them public. He gives the names, Mad, Babelouch, Arbah, i. e. Medes, Babylonians, Arabs; the Ayura, Arosi; the Ktpdhuk, Cappadocians; Arion, Arran; Zrk, Arôi, Bakhtroch, Cughd, i. e. Zarangians, Haroyu, Bactra, Soghd, &c. He has not overlooked the great importance of this inscription, which no one before him seemed to perceive. He regards it as collateral with the well-known catalogue of the twenty satrapies in Herodotus (III. 90-93). It belongs, he thinks, to the most flourishing period of the dominion of Xerxes, who here appears with the same title as his father Darius, son of Hystaspes, to whose honour he erected a monument like his own. Here we behold him surrounded by those heroes, the Pehlvan, who are of ancient fame in Asia, and whose images accompany his own on the monuments of Persepolis, just as a hundred years before, Cyrus was accompanied by his body guard.

In regard to the ancient language and writing of Iran, the following are the results of these researches:

The cuneiform writing, in relation to the language in which it is executed, shows that the sounds are not all expressed by the characters. Thus âuramzdâ, in the first line of the inscription above, is fully written in Zend Ahura mazda, i. e. divine being; whence by contraction Ormuzd. In this familiar name the deciphering is easy, but great doubt attends the interpretation in other places. So for example, in the Hamadan inscription, when we meet with cpird, as the name of a people, Burnouf arrived, at the conjecture of the Sporades, while Lassen shows that it denotes the Sapiri, from which name the *d* has fallen out in the Greek translation. The words which Burnouf reads Uiarsioh and Ytghuch, naturally suggest to him the Οἰχαρδοι and Ythaguri, on the confines of the Seres; but Lassen, by a very slight change of the lection, recognizes the names of the Quarazmiah (Charasmii), and Zatagadus (Sattagydes). Here,

therefore, a wide field lies open for criticism. This circumstance shows a great discrepance between the language and the system of writing. There is no doubt that the language belongs to the Indo-Persian family, in which a full and consistent expression of the vowels is a demand of the language, and indispensable in writing. This discrepance, according to Burnouf, results from the conflict of two different systems, the Japetic, to which belong the Indo-Persian and the Germanic languages, and the Semitic, which reveals itself in the cuneiform writing, inasmuch as the character does not fully express the pronunciation. The system of the first of the three rows of cuneiform characters, on the double inscription at Elwend, which at the same time is the most simple, and reappears in most of the inscriptions at Persepolis, is not, in Burnouf's estimation, of Iranian, but of Semitic origin, a Babylonian writing, first borrowed from foreigners by the Persians. Before Cyrus the Persians possessed no writing in which they could record this name, till then unknown in the history of the world. History has not related from what people the Persians derived their cuneiform system. Grotefend supposes from the Medes, their former masters. Herodotus says, IV. 87, that Darius used Assyrian * characters, when he finished the columns commemorative of his Scythian expedition, and placed on the bridge of the Thracian Bosphorus, with the names of all the nations who accompanied him, but Assyrian on the others. This then, as Burnouf supposes, was probably the cuneiform character, which perhaps by Median intervention had at this early date found entrance from Nineveh and Babylon, where that sort of writing, though in complicated forms, is found upon the ruined bricks and on other monuments. The correspondence discovered by Lassen, on the other hand, between the cuneiform system and that of the Sanskrit Devanagari, of which more will be said below, renders this hypothesis of Burnouf very doubtful.

The researches of Burnouf reveal to us the closest resemblance even in the slightest inflections, between the Zend and the unknown language of the cuneiform double inscription of Darius and Xerxes. Thus it is not the Zend of the Zoroastric books, though belonging to the same family. It much more really resembles the idiom of the Brahmans, the

* So says Ritter's text, but Herodotus has *ἐνταμὼν οἱ γράμματα, ἐς μὲν τὴν Ἀσσύρια, ἐς δὲ νὴν Ἑλληνικά*, which shows an error in the above sentence, and clears the sense.—Tr.

Sanskrit, though it has a character of its own, and must therefore be an independent tongue, which in some, though not very numerous instances, is like the modern Persian. It must then have been an actually spoken dialect, in which as that which was generally understood in the country, the Persepolitan inscriptions were cut into the walls of stone; and two nearly allied, yet dialectically different reigning languages then prevailed in the Persian monarchy.

Lassen, whose researches in this substantially agree with those of Burnouf, has on this account called it the Medo-Persian language, in contradistinction from the Soghdi-Bactrian, by which name he designates the Zend of the Zoroastric books. That at the time preceding the Macedonian invasion, and of course during the dynasty of the Achæmenides, such dialectical difference together with such a resemblance actually subsisted in the languages of the Medes, Persians, Arians, Bactrians, and Sogdians, we may be assured by the historical testimony of Strabo, (xv. 2, § 8, p. 224, ed. Cas.) that these people had almost the same language; εἰσὶ γὰρ πως καὶ ὁμόγλωττοι παρὰ μικρὸν. And this is confirmed by a second testimony preserved by him from the work of Nearchus, in which the latter says of the manners and language of the Caramanians, that they are for the most part Persian and Median; (Strab. xv. 2, § 17, fol. 727, ed. Cas.) thus rendered: Nearchus asserit Carmanitarum mores ac sermonem maxima ex parte Persarum esse ac Medorum aemula.

The contemporaneous existence of three rows of different cuneiform writing in the double inscription at Elwend, might induce the conjecture that they belonged to three different languages, of which the first was merely a sacerdotal language, of religion and the laws, remaining unknown to the people, like the Egyptian hieroglyphics, or the Greek and Hebrew of the Christian Church; while the other two were translations into the common dialects. But it is conclusive against this that even the first language of the cuneiform inscription by no means contains the Zend of Zoroaster, but only a dialect widely diverging from the Zend text. It is as improbable that at the same time, in the fifth century before Christ, the pure Zend was the common language of districts lying so wide apart, and in so different degrees of culture, as from Bactria and Ariana and Persis, as it is probable that the speech of the inhabitants of the proper Persis, in the time of Darius, should have borne a certain relation to that of the Bactrian, Sogdian and Arian countries;

since even in our day there are resemblances between the ancient Persian and the Indo-Bactrian tongues.

The Persepolitan popular language, or Medo-Persian, barbarous as it seems from these cuneiform monuments, is nevertheless, on this very account, of far greater interest, than if the inscriptions, as was the earlier opinion, were merely in the Zend of the Zoroastric books, which both in itself and in comparison with the finished Sanskrit (Sanskrita, i.e. polished, perfected, complete, or classical tongue: Bopp) must be denominated a very rude language. For, in that case, we should only become acquainted with a learned tongue, five hundred years older than our era, whereas we now possess in it, says Lassen, the monument of a national language, which was spoken during the time of the Persian monarchy. These inscriptions prove indeed the existence of the Zend, and are a memorial from which the religious ideas of the Zendavesta break forth afresh; but they are at the same time conclusive touch-stones of the influence exerted by the sacred language of the Arians on those of Persian Asia.

This influence is apparent in the extraordinary number of geographical names on the field of northern and eastern Ariana as far as the Jaxartes, all of which receive their elucidation from the Zend, and their confirmation from the ancient classics; which will, below, be made further apparent in like manner from many national names still used by the people of western Iran as far as the Tigris. Hence the Zend can no longer be regarded as a dead language of priests, but must be admitted to the rank of popular languages, and as one which was growing old even five hundred years before Christ.

As to the Zend, and its relation to the Indo-European trunk of languages, otherwise called by Bopp, the Indo-Germanic, some remarks may here be made which concern their geographico-historical-position. This great philologist regards the Zend, neither with Rask, as a language altogether independent of the Sanskrit, nor yet as a mere dialect of the latter, but as having a sort of independence, like that of the Latin when compared with the Greek, or the old Northern as compared with the Gothic; whence this remarkable fact, that in many points, as the master of Sanskrit grammar expresses himself, it spreads into the other, of which the theory is thus rendered more comprehensible; for which reason we have above called the two, sister-languages. But, according to the researches of Burnouf, who also recognises the remarkable analogy

between the Zend and the Sanskrit, especially in the Vedas, these two moreover stand at the head of two systems of language of the same great division, which under different influences have been unfolding themselves during long periods,—namely, the Classic and the Germanic; or more specially the Greek and Latin on one hand, and the Gothic and Germanic on the other. The Zend follows more closely the law of the Gothic and Germanic tongues, diverging more from the Greek and Latin, to which, on the contrary, the Sanskrit approaches. To illustrate the analogy of the Zend and the Sanskrit, we adduce some words: In Zend, the son is *puthra*, sun *mithra*, land *khsithra*, command *fermân*; In Sanskrit, *putra*, *mitra*, *kshetra*, *pramana*. To show how the Sanskrit and Zend stand at the head of two systems of the same great division, a few words will suffice. In Sanskrit, three is tri, in Latin tres, in Greek τρῖς, in Zend thri, in Gothic threis. In Sanskrit, brother is phratri, in Latin frater, in Greek φράτηρ, in Zend brâtar, in Gothic brothar.

Besides the numerous tribe of words, which belong equally to the Zend and the German, the analogy between the Zend and the Gothic is so marked, that by means of these the great German grammarian Grimm, in his table of Consonants, has elucidated a number of particulars in which the Gothic differs from the Greek and Latin.

Cuneiform characters have been found as far west as Beyrut, (Monument de Berytus in Bulletino dell' Instituto di Corrispondenza Archæologica, No. 3, Roma, Marzo, 1833. P. 20—27, by Bunsen, Felix Lajard, and Cailler,) and even on the Nile, according to Young. The most important ethnographical document, in this character, is that of Persepolis, copied by Niebuhr, containing all the tribuatary tribes. According to Lassen's lection, it runs thus:

adᵃm dârhᵃwusˢ kˢsâhziʰh waᶻʳˢk
Ego Darius rex magnus
kˢsâhziʰh kˢsâhziânâm
rex regum
kˢsˢâhziʰh dⁿghunâm tésˢâm peˢunam
rex populorum horum hominum
visˢtaçpᵃngaâ put
Vistaspis filius
akˢâmᵃnisˢiʰh zâtiʰh
Achæmenius nobili genere

darhᵃwusˢ kˢsˢâziâh wasˢnâ aurᵃmᵃz
dangâ
Darius rex volentiâ Auramazdis
imâ dⁿghâwa thâ.
hæc populi ita.
ádᵃm adᵃrsˢiʰh ádâ ánâ pârᵃçâ kâra
Ego detestator. Hoc hâ Persæ minime
thâ. ayâm aiᵇrç mᵛnâ
fâ (populi) adversicum igni, mihi
bâg iᵛm âbᵇr.
hæcula attulerunt.

The names of people which follow are in this order: "Choana, Media, Babylon, Arbela, Assyria, Gudrâha, Armenia, Cappadocia, Capardia,

[What follows is not translated, but abridged, or culled from the midst of geographical details. What is placed within inverted commas, is translated.]

Hunae; tum hi, Uscangae, porro hi, Drangae; porro regiones hae, Parutes, Açagartia, Parthae, Zarangae, Aveiae, Bactria, Cugdia, Chorazmia, Zatagadus, Arachasia, India, Gadar, Caeae, Maci."

The following particulars occur concerning some of these;

Mad, that is Media, Madai. (Gen. 10, 2.)

Arbdk, comp. Arphaxad, Gen. 10, 22.

Hund Sacae: the Huns and Scythians. The residence of these is placed by Ritter south of Caucasus and the Colchians, where Herodotus gives us his 19th satrapy, made up of Μόσχοισι δὲ καὶ Τιβαρηνοῖσι, καὶ Μακρωσι καὶ Μοσσυνοικοῖσι καὶ Μαρσὶ. The Tibareni and Moschi are the Tubal and Meshech of Gen. 10. Now the Talmuds call both these, *Huns*.

ART. III.—*Seven Ancient Inscriptions in the Devanagri and Hala-Kanari characters, collected in the vicinity of Kolapur, and translated into English. By* BAL G. SHASTREE, Esq.

1. The accompanying seven inscriptions are from Kolapur. No. I, was procured by my friend Keshavarao Narsing, the tutor to the Raja, and carefully compared by myself with the original in the temple of Mahalakshmi, commonly called Ambábái, the mother. No. II, III, and IV, were copied by myself; and the remaining three (i. e. Canarese ones) were transcribed at my request by a person, pretty well conversant with the ancient dialect of that language.

2. I annex a complete translation of No. I. It mentions the names of four kings of the well known Chalukya family; Karnadeva, his son Vetugideva, Someshwara, and Somadeva. The capital of this branch of the Chalukyas is stated to be Someshwar in the Konkan, which, there is reason to suppose, was always the residence of the provincial chiefs. This document does not bear any date. The copy originally obtained was dated the 60th year of Shalivahana; but I found nothing to indicate this in the original, and the interpolation could be easily accounted for, as the transcript came from one of the priests, who are interested in assigning to the temple as high a degree of antiquity as possible.

The analogy of the character would not justify me in pronouncing this inscription older than the tenth or eleventh century of Shalivahana.

4. The inscription No. II, was found on a pillar of an old open temple called the Mandapa of the nine planets, from its having the figures of the sun, moon, and other heavenly bodies upon it. It is the grant of a spot of ground, on the eastern side of a village called Kettadasari, made by the great King, *Raja Narayana Mahâraja Mahâdeva*, the younger brother of Abja, and the protector of the original symbols of Mahalakshmi, monasteries, and charity houses at Kolapur, to Kanakachandra, surnamed Saraswati Kanthâbharana, (the necklace of Saraswati or the goddess of learning) the master of the charity house, living in the Mandapa. The same document records the grant of a house to Keshava and Narasinha, and is dated, Friday 15th Magha Shudha, in the Shalivahan year 1162 called* Krodhana.

5. No. III, is the grant of a village, called Kuradi, made in Shâka year 1172, by order of an officer of the abovementioned Yadava Narayana, called also *Shri Kanharadeva Vijaya*. This officer, whose name is Kanaya, calls himself "the worshipper of the sovereign's feet, entrusted with the collection of taxes in the districts of Kolapur and the whole of the King's dominions." The individual by whom the order is carried into execution is "Baswannaya, the Governor or Chief of the town," and its object is "to secure the prosperity of Gautamâri Keshavadeva, and his wife Edavá."

6. The character in which the three preceding inscriptions are written, differs so little from that of other records of the 11th and 12th centuries of Shalivahana, that with the very limited time at my disposal, I did not attempt making fac-similes of them. There are some doubtful letters in Nos. II and III; which a second reading might have cleared up.

7. The inscription No. IV, appears on a stone, in the town-wall near the *Varuna—tirtha* gate, which is well known to have been originally found under the ground by the late Raja who repaired the gate. It records another grant by Râya Narayan called also Ravaladeva. It is a document of considerable length and some historical importance; and I regret that, owing to the inconvenient situation of the stone and the lamentable action of the elements upon the upper part of it, I did not

* The year is marked doubtful in my copy, the Krodhana year appears to be 1167 and not 1162.

succeed in obtaining a complete transcript. Imperfect as it is, it supplies after the usual invocations to Mahálakshmí, the names of Sinha, Aídavá, Krishna, and Rama, as the ancestors of Naráyana; and states what is perhaps more interesting, that the first of these had the seat of his power at Mirjaya (Meritch). The inscription is dated 15th Magha, 1194 Shaka year, called Angiras; and records the following grants made on the occasion of a solar eclipse, viz.

1. Divya Sevya (village?) for the morning worship of the goddess and the distribution of victuals to ascetics.

2. The village of Guivilé, in the valley called Tulsi Khola, granted by *Saurada Yadava Nayaka*, to the good priest Ravaladeva of the Bharadwaja Gotra, as well as to Dube, the son of Govind, and the same, with the exception of land yielding Nishkasor pagodas, is for ever consigned to the charge of Vishwarúpa Rásbi Guru, skilled in the worship of Pashupati or Shiva.

3. A grant by the abovementioned Vishwarúpa of two spots of ground, yielding four and three pagodas respectively, to Vasudeva Bhatta of Vatsa Gotra, the great grandson of Gadadhara Bhatta; and to Kesharadeva, the son of Damodara Trivedí, skilled in the three Vedas.

"The grant is composed by Vásudeva Bhatta, the grandson of the very learned Gadadhara Bhatta."

8. This last inscription shows a somewhat curious circumstance, that eulogies of this kind sometimes commemorate different grants by different individuals.*

9. No. V, is an inscription, in corrupt Sanskrit, on a slab of stone in the Jaina Basti or temple, and its substance is as follows:—

Invocations to the laws of Jina and Arhata. In the race of Kshatriyas, descended from Shilhar, was born Naga (?), who had four sons, viz. Gonkala, Guisaha, Kirtiraja, and Chandrádítya. From Gonkala was born Marasinha who was the father of five sons. Girvala, Gangadeva, Ballala Deva, Bhoja Deva, and Gandarádítya. A son of this last-mentioned prince named Vijayáditya is described in the pompous style usual in such documents; and among the other epithets applied to him are "the Lord of Tagarapura," and "one who had obtained his desires,

* I found another large stone with Sanskrit inscriptions upon it lying close on the ground by this gate. Half of it however had been broken and consequently I could make nothing of it.

through the favour of Shri Mahalakshmi." This Vikramaditya while residing in his tents at Valvád* and governing his kingdom in the enjoyment of agreeable society, grants one-fourth of the village of Havinaheralgee, and twelve cubits of land for building a house to Maghanandi and Mánikjanandi Pandits. This grant is made solemnly by pouring a stream of water on the occasion of a lunar eclipse, which occurred on the 15th of Magha in the Shalivahan year 1065, called Dundubhi, and the object thereof is the performance of light kinds of worship to Parashwanath and the repairs of the temple consecrated, at Kahullakapur, by Vásudeva, (master of the class of Múla Sangha and Pushkaraguchcha, and the disciple of Mághanandi Sidhantadeva,) as well as the distribution of food to the devotees of the place and the service of ascetics bearing staves and pots." The grant is made, under a written deed, after washing the feet of the two abovementioned priests. It should always be respected by the descendants of our royal race as well as other kings, &c. Vásudeva bearing in mind the advice of his preceptor Maghananda regards this as the element of virtue."

10. While the preceding inscription was being copied, the transcriber was informed of the existence of a larger one buried under the same Basti. This (No. VI.) was accordingly opened, and found to be in the old Kanarese dialect, mixed up with a large number of Sanskrit epithets. Its contents may be given in a few words:

Invocation to the laws of Buddha. The race of Chilhar (Silhar) was sprung from Jimutaváhana, and the descendants thereof were lords of Tagarapúra (Kolapúr). One of these Gandarádítya resided in Valvad, Gandagopála was a worshipper of his feet. Gandarádítya and Vimbadeva follow, and both are celebrated as great rulers and pious devotees of Buddha; but what relation they bore to the last mentioned king is not very clear. For the performance of eight kinds of worship to Parashwanath in the Basti of Madgadi, near Kavadigolla, as well as for the repair of the said building; and the giving of food to saints, king Nimbadeva, in the presence of an august assembly of Shetties, including Bilwana Shetti of Kolapúr, and Biraja Shetti of Miraja, (Meritch) Halia Shetti of Kavadigolla, and a great number of others, held on Monday

* A village six miles from Kolapur, the Patelship of which is still held by a Jaina.

the 5th of Kartika Vadya, in the Shaka year 1058, called Rakshasa, makes the following grant, by solemnly pouring a stream of water, to the learned and pious Kupa Narayana, the priest of the Basti and the worshipper of Traividyadeva; viz. the right of receiving various taxes. Here follows a very long enumeration of taxes; viz. on betelnut, piece goods, vegetables, leaves, ghee, oil, shops, tents, &c. &c. the proportion being a small part of the goods brought to the market; for instance, 50 betelnuts in a load, 2½ seers of oil in a pot containing that liquid; and a *Falam* or one-tenth of a pagoda on every cart of turmeric, garlic, chillies, pepper, &c. The grant concludes with denunciation of the five great sins on the head of any one who may even talk of the abrogation thereof.

No. VII, was found in another Basti near the Rankalé gate. Though the fragment herewith submitted contains but a portion of the original, the names of Gandaraditya, Nimbadeva, Vijayaditya and the priest Maghanandi occur in it. The nature of the grant does not appear; but it is said to have been bestowed with a view to procure happiness, prosperity, and the birth of a son.*

12. All these inscriptions taken together, establish two points of some importance. First, That the influence of the Buddhists over the provinces round Kolapúr predominated in the eleventh century, and that it was altogether supplanted, or considerably diminished, in the succeeding centuries of the Shalivahan era. Second, That the followers of Buddhism, at the period under consideration offered reverence and worship to the local deities of the Hindus.

The present town of Kolapúr is not older than the time of Tárábái and Shivaji. The records now discovered prove, however, that it was a place of some political consequence, and that its sanctity was in great repute, among the Hindus and Buddhists, upwards of seven centuries ago. I shall now mention some circumstances, which render it probable that it can lay a claim to a still higher degree of antiquity.

* The inscriptions No. IV and VII being incomplete may not be deemed fit for being laid before the public in their present form. As I could not however expect paying another visit to Kolapur for the present, I have thought proper to take some notice of them with a hope that some of the people who are now residing on the spot, may be induced to favour us with more perfect copies.

14. Kolapúr,* called in Sanskrit Karavirapura, or Tagarapura, holds an exalted station among the holy places of the Hindus. It is reputed to be the representative of Benares in the Dekhan, and a description of its sacred spots, temples, and Tirthas or tanks, forms the subject of a large Mahatmya; which, like works of that kind, enumerates the different sages, who attained merit by practising austerities there in the former Yugas. The occupation of the same place alternately by Buddhists Jains and Hindus, as the head quarters of their religion, is a well known circumstance; and the existence of the remains of antiquity in the neighbourhood of the town in question, need not excite our surprise. These remains are to be found in abundance, and require only to be searched and studied.

15. The great temple of Mahalakshmi is a building evidently anterior to the modern style of Hindu architecture. The Shikhara or conical pinnacle, has been lately added to it by the Rajas, and it has not got the usual Hindu symbol of Ganapati in front to the present day. It belongs to the class of those dark, many pillared oblong stone temples, so common in the south of India, and known in the Dekhan by the appellation of Hemádepanti; which, though probably not so old as the caves, must yet be regarded as the works of remote ages. A tradition is current that the image of Mahálakshmi was hidden in the house of a Brahman, during the religious persecution of the Hindus, and the appearance on the temple of one or two figures of Jain saints, in their usual attitude of prayer, finally determines the question of its Buddhistic origin.

Ever since the establishment of the Mahratha Government at Kolapur, temples and other buildings have frequently been observed at different distances below the surface of the ground. Many of the present houses are believed to stand upon such remains; and the people have been so much accustomed to meet with them in digging down for the foundation of houses that they now scarcely excite any surprise.— The last discovery of this kind which was mentioned to me by a credible authority, occurred a few years ago during the construction of a Ghat, or flight of steps, on the banks of the Panchaganga. The minds of the Hindus are ever prone to look for the marvellous, and therefore instead of as-

* The word Kolapur itself probably meant the same thing as Tagarapura. It owes its origin either to the Sanskrit word Kulhar or to the Canarese word Kolihu, both of which signify a lotus.

cribing these records of antiquity to their proper origin, they suppose them to be the abodes of the Rishis mentioned in the Mahatmya. This belief has led their imaginations to fancy the appearance of human figures and lamps in the dark caves accidentally laid open to their view; and, as it is natural to suppose that such beings, who have been engrossed in meditation for millions of years, would not like to be disturbed in their religious exercises, stories have been circulated of daring and officious intruders upon the sanctity of their dwellings having been turned blind, deaf, and dumb, the moment their curiosity was likely to be gratified. These tales are enough to deter the silly and the timid from attempting similar enterprizes; and the course usually adopted, on the discovery of subterranean buildings, is to cover them immediately, and to keep the circumstance as secret as possible. Such is the feeling of awe and dread with which the people are induced to behold these spots, that they have not the courage to visit and explore the contents of one or two caves about the town, which have been left open probably by the carelessness of those who first discovered them.

Notwithstanding this, a great number of fragments of pillars, slabs, and other specimens of masonry have been picked up at different times; and these, with inscriptions upon some of them, are to be found in different parts of the town. An interesting question then presents itself, at what time and by what causes was the ancient town of Kolapur, or some part of it, at all events, buried under the ground?

18. The supposition of volcanic agency, earthquake, or any similar subterranean cause, is inconsistent with the alluvial nature of the surrounding soil, and no prominent elevations, rents, or any unnatural arrangements occur. The bed of the river Panch Ganga is obviously too low in comparison to the situation of the present town, and too strongly checked by high and steep banks, to admit the conjecture that this stream could have destroyed any portion of it unless the same was considerably lower than what it appears to have been from some of the old buildings still standing. The cause to which we may ascribe the revolution in question, with some degree of confidence, is the reservoir Rankalé, which stands on a higher level than many parts of the town. This tank receives the whole of the water descending from a hill on its southwestern side, and being about a mile in breadth and nearly three miles in circuit, is known at times to have poured forth impetuous tor-

rents of water in the direction of the town, when its banks were not sufficiently protected. A flood of this kind is said to have extended to the western frontier of the suburbs, about seventeen years ago. The majestic basin gave vent to its overflowing contents through a small channel, which, as was believed at the time, was dug by some mischievous children playing on its banks; and the mighty stream destroyed the innocent miscreants, and swept away a number of houses, in the Shukarwar Peeth, before its ravages were stopped by the Raja with his elephants, and by more durable embankments. I may mention also that the subterranean temples, inscriptions, and all the other records, are found in that part of the town, which lies on the same side as the lake; and nothing of the kind has been found in the eastern quarter, as far as I am aware.

19. When the important phenomenon adverted to in the above paragraph took place, it is impossible to determine. Tradition is altogether silent on the subject, and there is no other circumstance from which we might hazard even a conjecture. But as all the inscriptions, now brought to light, are dated in the 11th and 12th centuries of the Shalivahan era; and as most of these have been found under the ground, there is strong reason to conclude that the old town was in existence to the middle of the 13th century of the Christian era, and that its destruction must have occurred at some subsequent epoch.

No. I.

Translation of an inscription on a stone in the temple of the goddess Mahálakshmi.

1. Salutation to Mahálakshmi the goddess of wealth. May you receive protection from the remover of difficulties, (Ganapati); whose heart (lit. belly) is a reservoir for the nectar-like disposition to shed blessings upon the world; and the bright lustre of whose teeth, white as the *Jasminum Multiflorum*, dispels the gloom of ignorance and illumines all quarters. 2. May the king, Somadeva, with his queen Manikyadevi, be preserved by that goddess, who is an enemy to the Daitya race, and who, under different names and forms, such as Gangá, Brahmi, &c. averts the calamities of the three worlds, and has manifested herself on the earth in the shape of Mahalakshmi for the benefit of her votaries. 3. May prosperity attend the dynasty of the Chalukyas, of an untainted glory; which is the repository of every variety of excellence as the

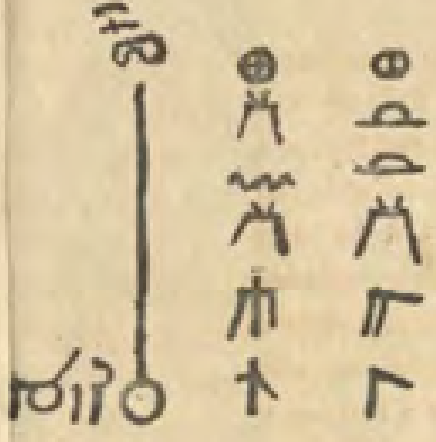
ocean is of gems; and like the luminary of the day, is the only source of splendour, and whose fame is spread far and wide. 4. How is it possible to describe the character of the sovereigns descended from this house; who were possessed of immense treasures; and who being mentioned, other eminent princes are thrown into neglect. 5. We shall, nevertheless, extol some kings of this dynasty, who flourished at Sangameshwar in the Konkan, and were all celebrated for their good qualities. 6. In this family was born king Karna of an unspotted character; who reclaimed the earth by his virtues; chastised those Kshatriyas that did not do him homage; obscured the moon by the fair fame of his liberality; and propitiated the gods by performing various Yagnyas accompanied with liberal distributions of alms. 7. He was the sovereign of a great kingdom, and having gained five great titles, lived at Vijaypat, the best of eastern cities. 8. He made the lotus of the Chálukya house bloom on the earth; his banners had the peculiar signet of a golden boar. 9. He was distinguished throughout (the regions bounded by) the seven oceans by the title of Nrisinh (lion amongst men), and was reputed to be a matchless hero, endowed with a noble and enterprizing spirit. 10. He might be called an adamantine asylum for refugees, and was much devoted to the service of the gods, the Brahmins, and his superiors. 11. The earth was eminently fortunate in being blessed with this king, whose hand was always wet by a perpetual current of water in giving alms; who was honoured in the assemblies of the learned, and who harassed his enemies by his daring exploits. 12. Whose armies were formidable in their march; who was virtuous in his deeds and a store house of all blessings in the Kaliyuga. 13. And he was distinguished for his wealth, virtues, and fame. 14. His son Vetugideva was a repository of glory and was possessed of immense wealth. As the sun, by his strong light, is the pinnacle of brightness, so was he the very pinnacle of the requisite qualities of a king. 15. As long as he ruled over the world with the tenderness of a father, diffusing an unrivalled fame, his subjects were as happy as they were in the presence of the moon. 16. To him was borne the best of kings, Somadeva, who rendered his dynasty illustrious as the moon does the end of the rainy season. 17. Having held the sceptre of his vast kingdom and rendered the earth prosperous, he repaired to heaven to adorn it by his virtues: but finding a vacuity on the earth, returned to it like the emblem of Shiva, which purifies great sins by the

sprinkling of water poured over it. 18. His younger brother Somadeva, was known in the three worlds by his glory, and the dread which he inspired into the mind of his enemies, through the favour of his spiritual preceptor Shrishâna Shambhu. 19. He was like a lion to his elephant-like enemies, and Shamed Kâma (god of love) by his handsome features: his deeds were virtuous; his bounty pure; his generosity unbounded. He possessed every admirable quality and was renowned for virtuous actions. 20. To him bowed the Suras and Asuras, whose heads were crowned with rubies. This king granted a village called Kubhar for the offering of fine Modakas, (a particular kind of cake,) every day to Mahâlakshmi at her mid-day worship. 21. The village has been given over to the goddess by king Someshwara, following a fixed virtuous principle and aspiring to be ranked among the great and the pious. 23. Whoever will resume our former grant of land, house, &c. situated behind the Matha (monastery) of Kaladeva, shall be doomed to the infernal region called Raurava, and shall be guilty of destroying one hundred Lingas. 32. Many kings as Sagar, &c. have enjoyed the sovereignty of this earth; to whomsoever the earth belongs, to him belongs the fruit thereof. 24. He who resumes a spot of land given either by himself or by another, becomes a worm in filth, for sixty thousand years. 25. This short, but elegant and figurative eulogy, has been compiled by consent of king Somadeva, acting under the directions of his preceptor Shrishana Shambhu. May it prove auspicious. Written by Vedyadhar Pandit. May there be prosperity for ever.

Note by the Secretary. The *Vadava* family, mentioned in inscription No 2, is also noticed in a Hali-Kanari inscription, at Bijapur, of which an account will be found in Vol: I of our Journal, p: 572.—The *Silhara* family also of No 5, and the city of *Tagara*, have been made known to us by various copper plate-grants of land: one of which, that was found at *Tasnah*, was translated into English, and published in Vol: I of the Asiatic Researches; and another, making mention of *Gokal Raja*, *Gurel Raja*, *Kirti Raja*, and *Chandra Aditya*, with other branches of the same family, was made public in Vol: III of the *Transactions of the Literary Society of Bombay*; p: 305.—The author, in the previous account of ancient inscriptions at Kolapur, wishes to identify this city with the ancient *Tagara*; which, at the time when Arrian's Periplus was written, or in the beginning of the second century of our era, was the great emporium of the Dekhan, to which all kinds of commercial goods were brought, and conveyed through the *Bala-Ghat* mountains to *Barigaza*, or *Broach*.—The true position of *Tagara*, or its identification with the modern *Daulatabad*

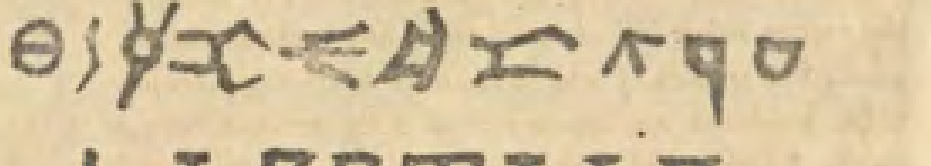
Plate XXII

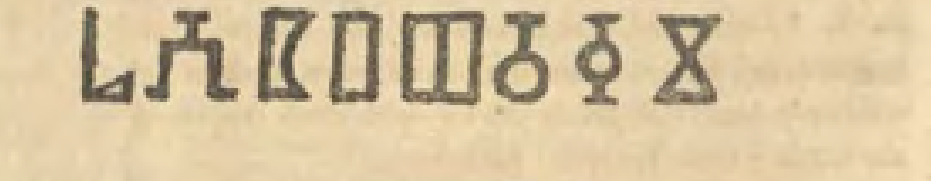
Inscriptions copied from the Jubal Muktatib near Wedj in 1831.

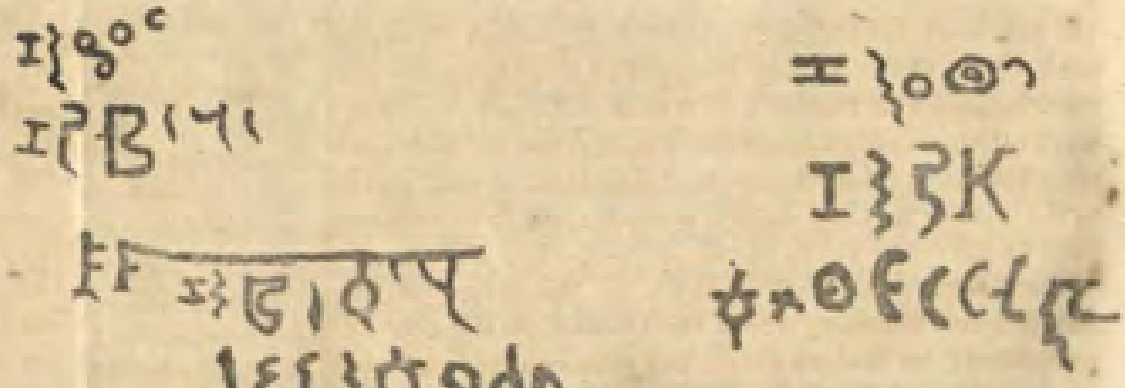


A

These two characters are seen in several places.







Art. IV.—*An account of Sherm Wadj, in the Red Sea, with a notice of ancient inscriptions from Jabal Mukattib in the immediate neighbourhood. By Captain T. Carless of the Indian Navy and Assistant surveyor to the survey of the Red Sea from* 1829 *to* 1834.

Sherm Wadj is a small inlet, forming an excellent anchorage, on the eastern side of the Red Sea, in Latitude 26° 15′ north, where wood, water, and sheep, may be procured from the Bedwins at a cheap rate. The water is brought on camels from the ravines and vallies amongst the hills, a few miles inland, and is excellent. On the beach, close to the anchorage, there are six or seven rudely built storehouses or shops, from which the boats' crews frequenting the place, and pilgrims on their way to "Mecca," can obtain supplies of food and clothing; and on the cliff forming the north point of the inlet, the ruins of a fort are visible, but it does not appear to have been of any great size or strength, and is evidently of Arab construction.

From the plentiful supply of water, the country about Wadj is more fertile than any other part of the coast of the Red Sea above Jeddah, the vallies being full of small trees and bushes, and thinly covered with grass, one species of which, from its seeds being enclosed in long silky tufts, produces an appearance as if the ground were covered with fine down. Herbs and wild flowers are also observed springing up in profusion every where, and many of the latter, when in full blossom, are exceedingly beautiful, filling the air with their fragrance and affording to the cattle a most luxuriant pasturage.

has not been satisfactorily established, though *Phaltemba*, on the southern bank of the Godaveri, and *Mungy Paitan* on the same river, clearly represent the *Plathana* and *Paithana* of Arrian.—*Tagara* was ten days journey eastward of *Plathana*, or about one hundred and ten miles, while Kolapur is more than 180 miles from *Phaltemba*, being situated south-wards and considerably to the west of this ascertained position: the true situation of the ancient *Tagara* is therefore yet to be ascertained.—The *Callian* of Arrian is however without doubt, the locality known by this name on the mainland opposite Salsette and Bombay; where the Greeks, in the time of the Periplus, were prohibited from landing goods, and were confined in their commercial transactions to the harbour of *Broach*.

About six miles inland from Wadj, there is a small fort, situated upon a plain at the foot of the hills, belonging to the Pasha of Egypt, and garrisoned by a few of his troops. It is of a square form, strongly built with towers at the angles and gateway, mounts several guns, and serves not only to overawe the tribes in the neighbourhood, but also, as it lies in the direct route from "Syria" to "Mecca," as a place of refuge and succour for the pilgrims performing the Hadj. In its immediate vicinity, one of the principal routes from Wadj, into the interior, enters the mountains, and passes through several wild romantic ravines bounded by irregular crags of granite formation. At the entrance of the pass, the cliffs rise perpendicularly to a considerable height, and on those which have smooth surfaces, the face of the rock is covered with inscriptions in an unknown character. They are rudely cut, placed very irregularly and all very short, there being none, as far as I could discover, of greater length than those I copied. Niebuhr, if I remember right, mentions having seen them when travelling in this part of Arabia, and supposes them to be merely a kind of rude hieroglyphics cut in the rock to commemorate the arrival and departure of pilgrims, but in this opinion I do not agree with him, as they appear to me of great antiquity and a distinct character can evidently be traced throughout the whole, which bears some resemblance to the Ethiopic. From this I am inclined to think they are of Hamaiyaritic origin, for we know that even so late as the time of Mahomed's appearance, two distinct dialects prevailed in this part of Arabia, the Hamaiyaritic and Koreish, and although no records have been transmitted to us, to enable us to arrive at a satisfactory conclusion on this point, the former is believed to have borne a strong affinity to that language.

Nine or ten miles beyond the entrance of the pass, the road, after winding through several rocky ravines and beds of torrents, descends slightly and emerges upon a spot where the country for some distance is more open and the hills are much lower. Here the ruins of a large town are met with, occupying in clusters an extent of about a mile and a half in length, by three quarters of a mile in breadth, which the Arabs call Feyrabat, and assert was built by the Nasseranees or Christians. It is now so entirely in ruins, that heaps of stone alone remain to point out its site, and nothing whatever is visible from which an opinion might be formed as to its age or the people who built it, but some of the houses

have evidently been constructed entirely of marble, which is procurable in large quantities from the surrounding hills. One of these, not more than 300 yards distant, from its numerous extensive caverns and figures, is itself a great curiosity, and is said by the Bedwins, who are afraid to pass near it, to be the abode of all kinds of evil demons. If the inscriptions on the Jabal Mukattib, at the entrance of the pass, could be deciphered, they would perhaps throw a ray of light on the history of this town and its inhabitants.

All the Bedwins, with whom I have spoken on the subject, state, that throughout that part of Arabia, extending along the borders of the Red Sea from Akabah to Jeddah, and from 30 to 40 miles inland, the ruins of old towns are very numerous, and some of them also mention the existence of inscriptions, similar to those noticed above, in various places, but their descriptions are so vague and confused, that with my imperfect knowledge of the language I have not been able to ascertain the precise localities where they are to be found.

T. G. Carless,

Aden; August 13th, 1845. *Com. I. N.*

The Journal, from which this extract is taken was written in 1831, during the survey of the Red Sea, some years before the inscriptions found at Hassan Ghorab and other places on the southern Coast of Arabia were discovered. Those I copied from the Jabal Mukattib, near Wadj, appear to be written in a different character, but some resemblance is still observable between them, a few of the letters and the signs or characters marked A, being common to both, others again are merely the same as some of the Amharic letters now in use, and it will be seen that the inscriptions are written both horizontally and perpendicularly; a peculiarity not observable in those discovered on the southern Coast of Arabia.

Note by the Secretary.—The town mentioned in the fourth paragraph of Art. iv, near which, in one of the mountains, are said to be extensive caverns and figures, seems to be the same as *Wadi-al-Kura*, on the Caravan route from *Damascus* to *Medina*. One of the inscriptions is in the Himyaric character of Southern Arabia, the others, mixed with Hieroglyphics, in the Nabathean character of the Syriac, similar to the inscriptions which have been deciphered by Professor Beer.—A bad copy of the inscriptions now sent by Captain Carless will be found in the Journal of the Geographical Society of London, Vol. VI p. 64.

ART. V.—*Notes on the agriculture of the Cherotar district of Gujarat.* By LIEUTENANT COLONEL MELVILL, *formerly of the Gujarat Revenue Survey.*

The Cherotar is that part of Gujarat situated between the *Mahye* and *Sabarmati* rivers, and may be said to be bounded by a line roughly drawn from Ahmadabad to the small town of Oomret. It is the richest and most highly cultivated part of the Province; a character which it owes partly to the natural fertility of its soil, but in a much greater degree to the skill and industry of the Kunbies, who are its principal cultivators, and who claim this particular spot as that in which their ancestors first settled. All the agricultural skill of the country is concentrated here, and I have therefore thought that the following brief and imperfect notes may be of some use, as calculated to illustrate the system of agriculture which prevails in a province so celebrated for its fertility.

Soil.

Gujarat is well known to be an entire alluvial plain, an almost perfect level, and destitute of rock or stone, except in the neighbourhood of the hills which form its boundary. The soil has two marked divisions, *black* and *white*, called by the natives *kali* and *gurarn*. The former prevails over all the southern, the latter over all the northern parts of the province. The black soil is known very universally throughout India, as black cotton ground; and is a rich loam, which, in the rains, becomes a mass of stiff ground, and in the dry season hardens and shrinks up, leaving deep holes and wide cracks. Its depth seldom exceeds six feet; and it is consequently adapted to those plants only which strike their roots along the surface, rather than deep down into the ground. The white soil is a light sand, more or less mixed with clay to the depth of ten or twenty feet, where a gravelly or sometimes a marly stratum appears, abounding in springs of water. It is a general remark throughout Gujarat that every spot of ground which is relatively *high*, partakes of the white soil, and *low* of the black; and so much is this the case, that in some parts of the country, the white soil is termed by the natives *Thal-lia*, or rising ground.

The soil of the Cherotar is almost entirely *gurarn*; it is never equal, but sometimes approximates to the *marica* land of the Jambusir Parga-

nah, on the southern side of the *Mahye*, which Mr. Marshall has described as a sandy loam of light brown, or *darkish* tinge, and the superiority of which he demonstrates, in his Statistical Report. An intermediate description of soil termed *beaur*, neither wholly *kali* nor wholly *gorarn* is common here, and used particularly for some kinds of crop. But the richest soil of all is the *bhata*, or land gained by alluvion on the sides of the broad beds which form the channel of all tropical rivers: of course this kind of land is of very confined extent.

Enclosures.

In the rich tract of the Cherotar, the fields are generally fenced with thick and luxuriant hedges, but, in most other parts of Gujarat, very little attention is paid to what an English farmer considers so important a part of his business. In the black soil indeed neither trees nor hedges thrive: and the cultivator is content to fence his field round with the thorny branches of the *baaval*, (mimosa,) during the time his crop is on the ground. At other periods, a narrow strip of unploughed land, marks the division of fields; and sometimes there are scattered pieces of the milk bush, or prickly pear, along it, which strengthen the dry thorns, and form a more compact hedge, when the season comes round for renewing it. The white soil, on the contrary, is well adapted to the growth of hedges, but they cannot flourish properly on any but irrigated land, where they receive a constant supply of water during the hot season.

The usual size of fields, in the Cherotar, varies from five to twenty acres. The hedges seldom exceed five feet in breadth; and crops of different kinds are frequently grown within the same enclosure. Rice lands, which require to be flooded, are enclosed with banks of earth about two or three feet high, and a foot broad. The sugar cane fields are guarded by thin walls of mud and straw, six or seven feet high, which completely encircle the field, leaving no aperture but a small hole just large enough to admit the body of a man; and even this is placed at some height above the ground, and carefully blocked up with thorns. This wall is absolutely necessary as a defence against wild hogs, which are so voraciously fond of the cane that they will break through all ordinary obstacles in their way to it.

Draining and Irrigation.

The husbandmen of Gujarat have no knowledge whatever of draining,

and from the costliness of the operation, and the skill required in its execution, it will probably be one of the last operations of scientific agriculture, with which they will make themselves acquainted. I am not sure indeed, that it could be often applied with much advantage. The Cherotar is a part of the country, which suffers particularly from floods of water during the periodical rains: but individuals can do little towards remedying this, as each man by draining his own, would flood his neighbour's property; and effectual outlets for the superfluous water require to be carried to so great a distance, that the work, if done at all, must be done with public, not with private capital.

To store up the rain water which falls during the monsoon, and to distribute it over the fields during the dry season, is a more important part of Indian agricultural economy. Without the aid of artificial irrigation, a single crop only can be produced in the year; but on a field which has the advantage of being watered, three crops may be raised in succession. Again the single crop is always one of a common kind, usually that which forms the staple produce of the country; and, from its abundance, must always be cheap, as all the fewer and valuable species of crops require to be regularly watered for several months. If we add to this the uncertainty of the rains, which may be too heavy or too scanty, or may fall in an improper degree at particular periods, it is certainly not too much to rate the difference of value between what are usually termed the dry and the wet lands, as four guineas per acre. The quantity of irrigated land in Gujarat bears but a very small proportion to that which is not irrigated. From accurate statements, to which I have had access, I think it may be fairly stated in the Cherotar at a tenth part of the whole quantity of land in cultivation.

It is singular that throughout all this Province, there is no work of art of any magnitude constructed for this important purpose. The Rulers of the country apparently have never cared for the construction of aqueducts or reservoirs. Of common tanks there are abundance; but the tank is not well suited, in level countries, for irrigation; it is itself so dependent on the monsoon rain, and is always liable to fail, just at the time when it is most wanted. The stream of rivers again generally shrinks up to such a narrow compass in the dry weather, as gives little opportunity of applying the water extensively, without the aid of such expensive machinery as must be far beyond the means of Indian agricul-

tarists. There is one little river, indeed, near Ahmedabad, called the *Khari*, of which much use is made; it is very narrow, and confined between mud banks, which for a long distance are so low, that a dam brings the water even above the level of the neighbouring grounds. These dams are curious; they are formed of earth only, and never go straight across, but wind with an unskilful and often ineffectual contrivance to break the force of the water, and thus prevent its pressing too much on any part. The muddiness of the water of this little stream renders it peculiarly valuable for irrigation.

We may safely say that at least three fourths of the irrigated lands are supplied with water from common draw wells.—Spring water is abundant in the Cherotar, and with the exception of a tract of country near the bank of the *Mahye*, the level of which is higher than ordinary, it can be procured, in abundance, at the depth of twenty or thirty feet from the surface. In digging wells, the first operation is to make a round excavation, about twenty feet deep, or until some appearance of water is perceived. A circle of wood, called a *Chakar*, made with great care, is then slipped to the bottom of the hole to serve as a foundation, and upon this the first layer of bricks is laid. As the building goes on above, the ground is loosened, and if it can be managed, dug up beneath, until the weight of the brick work causes the whole mass to sink, which it will do to the depth perhaps of ten feet, the water being drawn off each day as it rises, until the sinking can be carried no further. The work is then carried up to the surface, covered with a coat of *chunam*, and the well is complete. But if the depth thus obtained, be not sufficient to ensure a copious supply of water, a second circle of wood, called a *tundi* is fitted within the circumference of the first, and built upon, and sunk in a similar manner. In this operation the difficulty of drawing off the water, with sufficient despatch, is very great; and when, as is sometimes the case, it becomes necessary to insert even a third circle, the expense and labour is immense. In those parts of the well which are under water, the only cement used is a little clay, but the bricks must be fitted together with great nicety. In constructing the *chakar*, the use of metal, nails, or iron fastenings is avoided, and their place supplied by wooden pegs, to avoid the corrosion that would otherwise take place. Wells in the Cherotar are always made either of brick or of clay hardened in the sun called *kund*. In the neighbourhood of the hills on the frontier of the Province

stone wells are met with, but they do not answer well, from the difficulty of sinking them to a sufficient depth; for they cannot build them in the gradual manner of brick wells. Stone is better adapted to the construction of that kind of well called *bauli*, which has steps on one side, and is not intended to be used for irrigation; it consequently does not require to be sunk to any great depth, as it is not liable to be much drawn upon. A good brick well, perfect in every respect, and twenty feet deep, will cost in construction about two hundred rupees; if forty feet deep, five hundred rupees, and proportionally at intermediate depths.

The water is drawn up from wells in a large leather bag, made of buffalo's hide attached to a rope, to which a pair of bullocks is yoked. The rope is passed over a wheel fixed on cross sticks; and to assist the purchase of the cattle, an inclined plane is formed down which they walk, and thereby draw at a much more acute angle than they otherwise could. In a single well, several *Kos* may work at once according to its diameter; four is a very common number. I have seen eight and heard of fourteen. In working deep wells, called *Ramia*, two pairs of bullocks are usually employed to each *Kos*; when the first pair arrives at the bottom of the inclined walk, the bag is loaded by a man stationed for the purpose, and its contents discharged. The rope is slipped, and when the bag has again reached the water is fastened to the pair of bullocks at the top standing ready to receive it. It is curious to observe the men keeping count of the number of *Kos* drawn by passing little balls of clay from side to side of a niche in the bank. In working shallow wells, called *Sundia* only one pair of oxen is used, and a peculiar contrivance enables a single man to do all that is necessary. The *Kos* has, at the bottom of it, a long open pipe or trunk to which a second rope is attached, passed over the lowermost edge of the well, and joined to the principal rope just below the bullock's yoke. The length of this rope is so contrived, that when the bag is below the surface the end of the trunk is drawn up and secured, but as soon as it comes on a level with the top, the end is drawn inwards, and the water immediately discharges itself into the receptacle prepared for it. The *Ramia kos* is calculated to contain about 40 gallons of water, and the *Sundia* about 30; and 800 of either may be drawn in the course of a single day; and a single *kos* is calculated to be equal to the irrigation of 6 to 10 acres in a season.

The water on being drawn up, is received first into a shallow basin

lined with *chunam*, whence it flows into a narrow sluice also chunamed for a few feet; but after this, the only channels used are of earth raised a little off the ground. The field is divided into little square beds, about 4 feet each way. The course of the water to different parts, is managed by one of the cultivators who diverts or directs its passage to particular spots by opening or damming up the channels with a little wet mud, which he carries in his hand for the purpose.

Implements of Husbandry.

There is only one kind of plough, known in the Cherotar, and that is the simple kind found all over India. The bar is usually a crooked piece of wood, and the small piece of iron used as the share, is the only metal about it. It is drawn by a single pair of bullocks, and scratches rather than ploughs the ground; but it appears to answer every required purpose, in this country, where all experience shews deep ploughing to be quite unnecessary, if not absolutely injurious. In the very stiff black soil, the plough is not used at all, but in its stead, they have an instrument, called a *Ramp*, something like, I believe, a drag hoe; it is a heavy bar of wood, about a yard long, to which is attached a blade of iron slightly curving inwards, in the shape of a crescent. It is drawn by four stout oxen, and cuts up and exposes all the surface of the ground, without penetrating to any depth, a practice of which experience has taught the agriculturists the utility.

All seed, with some trifling exceptions, is sown with the drill, here called *Turphun:* it is ingeniously contrived to sow several kinds of grain at the same time. Weeding is performed partly by hand, and partly with a rude harrow, having six or eight iron coulters or teeth; there is also a *Kumbri* or rampri, a smaller kind of *Ramp*, used for the same purpose.

The only other implement of husbandry worthy of notice, is a large rough board, which is drawn over the surface to break the clods and smooth it preparatory to sowing. This is called a *Sumar*; and fulfils very imperfectly, and with far more labour, the office of *Rollers* in England.

The rude manufacture of these farming tools may be judged from their value. The *Plough* costs about 2½ rupees; the *Ramp* about 3 rupees; the *Drill*, 1 rupee, and the *Rampri* 1½ rupees. The yoke and harness for the bullocks will cost perhaps an additional rupee in each case.

Manures.

The common manure of the Cherotar is cattle dung: every cultivator of any condition, has a stock of at least four or five cattle of one kind or another, the dung of which he preserves in some convenient spot, generally near his house. The compost accumulates, and is never disturbed until the season for using it comes round, when it is carried out to the fields in carts. No kind of care is taken of it, and much of its most valuable properties is doubtless dissipated in the atmosphere. The practice of folding cattle upon fields is quite unknown; they are driven out daily to graze, but the manure they leave behind, is not even collected, excepting for fuel, but left to rot and waste on the grazing ground. Sheep are not kept in any numbers, and their dung on which English farmers set so high a value, is consequently wanting.

On the sandy soil, they frequently use as manure, rich black mould taken from tanks or the beds of *nullas*; this corrects the looseness of the sand, and forms a mixed soil which is highly fertile; but the trouble and expense of digging it out and carting it are very great, and it is little used but for the very best and most valuable species of produce.

In the southern parts of the Province, the practice prevails of ploughing in the hemp plant when half grown; and it is found to answer as very good manure. The refuse stalk and leaves of the Indigo plant, after the extraction of the dye, are also very valuable for this purpose; but of course merely known to the greater part of the people, by report, as the growth of Indigo is so very limited.

In the wild woody countries, on the frontier of the Province, the *Kheels* are in the habit of selecting small spots in the jungle, on which they collect all sticks and leaves and set fire to them. The ashes are equal to any manure and sufficient to ensure a good crop for two successive seasons. The Hindus, and particularly the Kunbies, have a curious prejudice against this; they extend their reverence for animal, to vegetable life, which they say it is not lawful to destroy, unless absolutely required for the food and support of man. They refuse therefore to adopt this practice, though they are themselves aware of its utility, and it certainly would be a valuable improvement in the agricultural economy of those parts where brush wood is plentiful. A Kunbi of Viramgaum endeavoured to overcome the difficulty by procuring a Kuli to fire the fuel, which he had collected and spread over his field. He reaped an excellent

crop, but the caste expelled him, and he was obliged to go to great expense before he could get his character restored. The same prejudice would prevent the introduction of what is called, in England, paring and burning; it would probably improve both the loam and the sandy soils to a very great degree.

Common manure is not often sold, as few cultivators have any to spare. Its nominal price is usually about a Rupee per cart load.

Seasons.

Ordinary land yields but one crop in the course of the year; an irrigated field will produce two and three crops in succession, but never more. The agricultural year commences with Jeth or June; the *Dewali* or feast of lights, which occurs generally in October, marks the termination of the *Chumasia* or four rainy months, and the commencement of the *Siala* or cold. The *Unalu* or hot season, is not so exactly defined, but may be called March, April, and May. The crops which ripen in October are called the *Kharif;* those which ripen in February are the *Rubi;* and in April or May, the *Hari*.

Productions.

The principal products of the Cherotar, are comprised in the following list. I have ventured to annex the proportionate extent to which the culture of each kind prevails, in decimal parts, supposing the whole extent of land under cultivation to be expressed by unity. I have drawn these proportions from the statements of the Revenue Survey; and, as they result from an actual survey and measurement of several *Parganahs*, I think they may be deemed to approximate pretty nearly to the truth. The botanical names I have drawn from various publications; but as I have myself no botanical knowledge, I cannot answer for their correctness:

Bajri, *(Holcus spicatus.)*
Jowar, *(Holcus sorghum.)*
Kodra, *(Paspalum frumentaceum.)*
Baota, *(Panicum frumen:)*
Rice, *(Oryza sativa.)*
Wheat, *(Triticum.)*
Barley, *(Hordeum distichon.)*
Sugar cane, *(Saccharum.)*
Indigo, *(Indigofera tinctoria.)*
Poppy, for opium, *(Papaver.)*
Tobacco, *(Nicotiana.)*
Kussoombhoo, *(Bastard saffron.)*
Cotton, *(Gossypium.)*
Dewell, *(Ricinus communis).*
Tul, *(Sesimum orientale.)*

Garden and other produce.

	Proportion.	Decimals
Bajri & Jowar,		0.63
Kodra, Millet, and poor grains,		0.15
Rice,		0.06
Wheat, and Barley,		0.05
Sugar cane, Indigo, and Poppy,		0.001
Tobacco,		0.002
Miscellaneous produce,		0.107
Total cultivated land,		1.000

Culture of Grains.

Bajri and Jowar are the staple grains of the Province, and for the production of which it has always been distinguished. They constitute the food of the larger part of the agricultural population; and are in fact the corn of Gujarat. Jowar is the proper production of the black soil, but grows also on *gorara*; bajri grows upon *gorara* only. To ensure a good crop, the land must be manured; and if any after crop be grown, the manuring must be repeated annually; otherwise once in three or four years is enough. The manure is ploughed in immediatily after the first fall of rain; the *Sumar*, a substitute for the roller, is then drawn over the surface, and lastly it is harrowed. The seed is sown in July, and after the lapse of a month, the ground is well weeded, and the crescent shaped knife, (*Rampri,*) is drawn between the furrows to clear away any old stubble or weeds. When the crop is about a foot high, its growth is checked by drawing the *Sumar* over it, and passing the plough between the ridges, by which means a much healthier and more fruitful plant is produced. The grain ripens and is cut early in October; it is trodden out by bullocks, and the chaff separated by a very simple process, viz: a man standing on a high stool lets the grain and chaff fall together in a breeze of wind, which carries off the chaff in its passage, while the heavier grain alone reaches the ground.

With the bajri or jowar there is always sown a proportion of *Kuthol* or pulse, consisting of Mug, Muth, Chola, Urod, Wal (a species of phaseolus and other leguminous plants,) which come forward about a month after the other has been cleared away. The practice of thus mixing crops

is very general, and apparently a good one. In fields, which have not the advantage of irrigation, one or other kind is almost sure to succeed under the most unfavorable seasons; the stalks and leaves of the pulse afford a succession of the finest green forage, which, where grass, as in the Cherotar, is so very scarce, is of great value to the Ryot. The *Karbi*, or stalk of both bajri and jowar, is well known as nourishing food for cattle. The natives, for feeding their bullocks, prefer that of the bajri; but for horses, that of the jowar only is used by Europeans. The quantity of seed required to sow an acre of ground is 14 to 20 lbs, the *Kuthol* forming three parts in eight. The produce of the best kind of land is 1,700 lbs per acre, *Kuthol* included; on medium land the produce may be averaged at 1000 to 1200 lbs. Jowar is sometimes grown solely for the sake of the *Karbi*, which is finest in the poor lands, where the produce in grain would not repay the tillage.

Kodra, the various kinds of millet and other poor grains, are grown in the inferior *gorara* lands, and form the food of the poorest classes. They are sown and ripen at the same time as bajri; kodra by itself, is somewhat too strong a crop for the poor lands, and its value is too low to admit of its cumbering the richer soils; to correct this, it is generally sown in conjunction with *Tuwar (cytisus cajan)* which is found to be an ameliorating crop.

Baota is a singular grain grown in the *besur* soils, or those which are intermediate between the *kali* and *gorara*. It is sown first in seed beds, and afterwards transplanted to the fields, where it is planted by hand in furrows previously prepared by the plough. It ripens towards the close of the monsoon, and will not thrive on the same ground for two years in succession. It requires some manure, but the crop after all is not of much value.

Rice, as a subject of cultivation, is of novel introduction in Gujarat; and it is still too expensive to be used as food by the generality of the people. It first came into use about 60 years ago, when the manufacture of Indigo ceased. It is grown in *Kali* land, or in prepared beds of a kind of artificial soil, nearest in appearance to the *besur*, called *Kiari* or *Kuarda*. The seed is first sown in small beds, called *Dura*, of the richest loam that can be had. In July or August the plants are transplanted to fields which have been prepared for their reception by manuring, flooding, and ploughing. They must be kept supplied with an abundance of water,

and for this purpose, tanks or wells which can be resorted to, in the event of the monsoon rain not proving sufficient, are invaluable. The crop is harvested in October; the average produce is about 1,500 lbs per acre; the best land will yield as much as 2,800 lbs, and the worst so little as 600 lbs. The natives distinguish six kinds of rice, classed as follows:—

1st Punkhali, worth one rupee and two annas per maund.
2nd Kumod, worth one anna less.
3rd Haichi, worth one maund and eight seers per rupee.
4th Sutarsal, worth one maund and ten seers per rupee.
5th Wankla, worth one maund and twenty seers per rupee.
6th Sathu, worth one maund and thirty five seers per rupee.

The last is a course kind of rice, sown broad cast, in any low spot, and frequently without the use even of a plough, the ground being roughly broken up with a pick-axe or hand hoe.

Wheat is of two kinds, the *Waria*, or that grown with irrigation, and the *Chasia* or that grown without. Both kinds are barbed, a protection which is perhaps necessary to preserve the grain from birds; and both are sown in October, and reaped in February. The *Waria* wheat is grown as an after crop to *bajri* or rice; and as soon as the *Kharif* is cleared, the field is watered with the old stubble standing, which rots and answers in some degree as manure. The natives conceive it desirable that the seed should be as near the surface as possible, and accordingly sow it by hand, smoothing over the surface afterwards with the *Sumar*. Barley is treated precisely in the same manner; it is not so liable to blight as wheat, and it is on this account often sown with it in equal parts. The singular circumstance sometimes occurs, of the wheat being destroyed, while the barley comes forward to full maturity. The blight of the wheat is caused by excessive cold *(hem)*, or the attack of a small insect called *Girwo*. About 140lbs of seed of either barley or wheat is required to sow an acre; and the return is about 2000 lbs. These crops are likewise grown on land which has lain fallow during the monsoon, in which case the crop is more abundant, but barley compensates for the loss of the *Kharif*.

The *Chasia* wheat is grown on low lands of the blackest soil, which in some parts, bears the name of *Ghoonwar*, or wheat lands. The ground intended for it, must lie fallow during the monsoon, and be ploughed two or three times. Where it can be done, it is advantageous to dam the field round, so as to retain the water upon it; in the richest wheat coun-

tries, these fields are perfect quagmires during the monsoon. The seed, about 65 lbs per acre, is sown in October; the ground requires no weeding; weeds indeed do not readily grow on it, and the crop is ripe in January or February. In reaping, the plants are drawn up by the root, and not cut off as most other plants are. The average produce of an acre is about 700lbs. The quality of the *Chasia* is superior to the *Waria* wheat, but both are very inferior to that brought down from Malwa.

Culture of Sugar cane.

Sugar cane is a very valuable description of produce, which can only be grown in the better kinds of *gorarn* soil, and with the aid of the very best water. It can be grown, on the same ground only once in four or five years, and it is consequently generally found in detached fields. It should be preceded by a fallow, and the ground should be constantly ploughed and kept very clean during the preceding years. In February the land is plentifully manured with dung and black mould, which must be thoroughly ploughed into it. The cane is propagated from cuttings, each containing three joints or knots, which are planted in small square beds previously prepared and flooded. The seed canes are placed lengthwise, in rows, at the distance of 15 inches, and each cane is two or three inches distant from its neighbour on either side. They are trodden in with the foot. The ground is watered plentifully every ten days, until the rains commence, during which no irrigation is necessary; but when the rains cease, watering recommences, and is continued at intervals of 15 days, until the cane reaches maturity, which is usually in January or February. When ripe, it is cut off near the ground, and the juice is expressed by a screw mill. This is formed of three rollers, the centre one the highest, and turned by bullocks. The rollers are grooved diagonally down, and fitting into each other so as effectually to crush the cane which is twice passed through them. The screw is always erected in the field and sunk under ground, to admit of the bullocks being conveniently yoked. The juice, as expressed, passes at once into a large earthen vessel, also under ground, where it remains cooler than in any other situation, and is not so apt to ferment and spoil. With as little delay as possible, it is passed from this vessel, into a large boiler made of iron, where it is boiled, and the impurities as they rise skimmed off, until it obtains a considerable consistence; it is then poured into a trough made of tiles, and left to

cool and granulate; lastly it is put into *mathas*, or earthen pots, which when full weigh about 80 lbs each, and sold as *Gul* or raw sugar. It is often called *Gur* and *Jagri* in other parts of India. The screw mill is made of the wood of the *babul (mimosa)*, which is peculiarly hard and tough: it costs about 25 rupees; no metal is used about it, and it will not stand the use of more than two seasons.

There are two kinds of cane,...the white *(dhalie)* and the red *(rathi)* —distinguished by their external colour. The *Gul* of the white cane bears a somewhat better price than that of the red, but a smaller quantity is produced from it. An acre planted with sugar cane is calculated to yield about 4000 lbs of the raw sugar.

Indigo.

Many parts of Gujarat were formerly celebrated for their Indigo. Beckman, in his history of Inventions, says that in 1633, Indigo was distinguished in Europe as Sirches, Chireles, Bejana, Begarra, and Gujarat Indigo. I do not know exactly what place Bejana may be, unless Bijapur, but Sarkhej is also mentioned in the Ayeen Akbary, as famous for its Indigo; it was indeed a *bunder* or emporium for this article, even prior to the building of Ahmadabad, when it was a large town of 18,000 inhabitants; and named *Dakha bunder*. The country about Kurrie and Jambooseer on the south of the *Mahye* also produced this plant extensively. About 50 years ago it began to be discontinued, as its price, from the superior manufacture of the Bengal planters, had declined so much as to take away nearly all profit from its culture, and it is now scarcely grown at all. The *kunbies** have some prejudice against it, on account of the animalcule, which they supposed to be destroyed in extracting the dye from the leaves. There is a prejudice also against Tobacco; but their prejudices either bend or break when the kunbies see any palpable advantage before them. The kunbies of the Virangam Purgunah entered into a general agreement, about 60 years ago, to discontinue the culture of Tobacco; and according to the custom of that country, had the agreement transcribed upon a stone, and deposited in the ground; but the culture of the plant has recommenced, and is rapidly spreading, as they find they can derive great profit from it.

Gorarn is the soil suited to the Indigo plant; it does not require very good land; indeed it improves land, and no manure is necessary unless it

* The Gujarat name for a Cultivator of the soil.

be grown in company with some other plant. The seed is sown with the drill, (50 lbs per acre,) in July, and the plants are ready to be cut in September. Careful weeding is all that is necessary in the mean time. The plants are cut about a span from the ground, and as vats are seldom to be had within a convenient distance, they are usually carried home, and the leaves made up into balls to be sold in a dry state. But it is far better to extract the dye from the fresh leaves with all the farina upon them. When this can be done, the plants should be carried off the field early in the morning, and laid in a vat, which must then be filled with water, and heavy weights placed at top to keep the plants well under. When fermented, which is the work perhaps of a night, the water is drawn off into a second vat, where it is worked up with large sticks; this operation is intended to separate the salt of the plant from the colouring matter, and requires the greatest skill and attention to say exactly the proper time when they are separated, as if long continued they reunite and cannot be again divided. When declared to be sufficiently stirred, which is judged by the colour of the water, it is allowed to stand quite quiet until the next day, when the water is drawn off into a third vat, and the sediment at the bottom collected. This sediment is first tied up tightly in bags, and suspended from the branches of trees to allow still more of the water to drain from it; it is then spread in small lumps upon a cloth under a shed, where it dries, and the process is then completed.

The refuse, dregs, and the plants after steeping, make excellent manure. An old Indigo field is never ploughed up the succeeding season, until the rain has fallen, as the roots and cut stalks, if allowed to rot in the ground are very beneficial. An acre of the Indigo plant is expected to yield upon an average 40 lbs of the prepared dye.

A few acres of the poppy have been lately cultivated in the Cherotar and found to answer very well. The experiment has not been made on any scale sufficiently extensive to admit of an opinion being formed relative to its success. The treatment of it is derived from Malwa, and it is not therefore worth while to give any detail here of its management.

Tobacco.

The natives have very vague ideas, or rather no ideas at all, as to whence the culture of Tobacco has been introduced. That its introduction is of modern date, we have every reason to conclude, from the identi-

ty of the name, and the circumstance of such a production not being mentioned by any of the old authors who treat of India, nor is it even to be found in the Ayeen Akbary, when the other crops of Gujarat are minutely enumerated. And yet it is strange, that the use of this weed should have spread so universally amongst all classes, as to have become almost a necessary of life.

The tract of land where the Tobacco of the Cherotar is chiefly grown, lies between Pitlad, Neriad, and Kaira. It is grown either with or without irrigation; the former is called Peet, and yields the largest quantity, the latter is termed Koraut, and produces the finest quality.

The Peet Tobacco is grown in *goraru* soil, which is prepared for it by manuring, ploughing, and good dressing. The seed is first sown in small beds, just after the first fall of rain, and the plants are transplanted into the regular fields, after the lapse of a month or a month and a half. In planting, a large rake *(Jeedi)*, with 3 or 4 wooden teeth, about two feet asunder, is dragged over the field first lengthwise and then across, so as to divide it into small squares; and a plant is set at each intersection of the lines. The young plants require to be well watered for some time until they take good root, and this must be continued, at intervals of 10 or 15 days, until they have reached maturity. The plant must not be allowed to flower, and all the buds, as they appear, must be carefully nipped off, in order that the leaves may not be deprived of any of the sap which gives them their flavour. The crop takes about six months to ripen thoroughly; in the mean time, it is particularly exposed to be injured by excessive cold in December or January, and by the rain which often falls just when the leaves are plucked and laid out to dry.

The Tobacco is cut from the middle of February to the middle of March. The produce is classed in two sorts, the *kaleea*, and the *jurdo*. That which is thought good enough for *kaleka* is first cut down, stalk and all, and placed in rows to dry; it is allowed to remain thus on the field for 10 or 15 days, when it is tied up, moist with the dews in early morning, and carried home as expeditiously as possible. To secure the produce of an acre is the labour of eight days, and to pack up the leaves in a fit state for sale occupies 12 days more. The leaves which remain after the *kaleka* is cut, are plucked from the stalk, and laid on the ground to dry for 12 or 15 days. The large and the small leaves are separated, and made up in bundles with layers of each alternately.

The cultivation of the Korant tobacco is conducted in the same manner as that of the Peet. The ground must be well ploughed and manured during the monsoon, but it is only low moist soils, of a peculiar nature, where this crop can be grown. An acre of the Peet is more valuable than one of the Korant, for the difference of quantity in the one more than makes up for that of quality in the other.

There are properly four kinds of Tobacco, the Tulubdee, Khandeshee, Hacechee and Gandeeo, each of which is classed again into *kaleka* and *jurdo*. The kind produced depends more on the skill and care of the cultivator, than on the nature of the soil; brackish water for its irrigation is preferable to sweet. This Tobacco is found to be of too mild a quality to have any value in an European market—but I think it is questionable whether it might not be submitted to some preparatory process, which might enable it to endure the passage and preserve its good qualities. The Tobacco of America, I believe, is made up in little bundles, which are steeped in sea water, twisted in the manner of ropes, and then formed into rolls by winding them with a kind of mill round a stick.

Miscellaneous Produce.

The Kussoombhee, or Bastard Saffron, is sometimes grown for the sake of its flowers, which are used in dying as those of the real crocus are in Europe. The plant thrives best in *besur* or mixed soil, and requires manure and previous dressing. It is sown in October or November, and flowers, without irrigation or much care, in January. The gathering is made in the cool of the morning, and the flowers are sold, just as they are, to people who make it their trade to bring them up. Sometimes the cultivator keeps them, and sells them in a dry state, but this is disadvantageous to him. The seed which they call *kahwe*, is a valuable article as food for cattle, to which it is found to be very nourishing. An oil is also extracted from the seed, which is used for adulterating other oils, but is itself of very inferior quality.

Cotton, in the Cherotar, is not much attended to; the plant grown here is a triennial, yielding no gathering the first year, and its best crop the last. It is usually sown in conjunction with *bajri*, or *koos*, in the proportion of seven drills of grain to one of cotton. An acre will yield at the utmost 400 lbs, and 300 lbs may be an average crop. This is the uncleaned cotton; cleaning reduces it to one fourth of its former bulk. In the Broach district the loss is only two thirds.

Deweli, the castor oil plant, and Chuna (*cicer arietinum*), gram, are crops generally used as fallows: their value being too inconsiderable to admit of their culture in other situations. They are sown at the close of the rains and reaped in January or February. Tull is another ameliorating crop, and is used as a preparation for bajri or jowar.

The Gardens of the Cherotar are merely enclosures, to which the means of the owner enable him to bestow a more than ordinary portion of manure, and constant watering. He then grows a variety of country vegetables, chilies, ginger, garlic, &c, and plentifully bedecks the walks with plantain plants. Plantains are grown as a regular field crop on the low grounds along the bank of the Sabarmati river, but I have never seen them in any other part of the Cherotar, and they are, I believe, very uncommon. Gardens can only be profitable near Towns, where there is a constant market for such produce.

Expenses of cultivation.

I shall venture to subjoin here a rough calculation of the expense attending the culture of each kind of crop compared with the return in produce. The only method of fairly estimating the expenses of cultivation is to consider the Ryot as a hired labourer, and to include every charge that he would be entitled to prefer, were he hired to till the lands of another. In reality the seed is perhaps the only article actually paid for in cash, as weeding, reaping, and all the labors of the field are performed by the Ryot himself or his family; but the prime cost of bullocks and stock, and the wear and tear of agricultural implements must be considered as entering in due proportion into the calculation.

	Expenses of cultivation per acre		Return valued at per acre	
Bajri or Jowar	10	Rs	25	Rs
Kodra	5	,,	15	,,
Baota	10	,,	24	,,
Barley or wheat	18	,,	30	,,
Chassia wheat.....	7	,,	20	,,
Sugar cane	180	,,	350	,,
Tobacco	40	,,	90	,,
Kussoombhee	20	,,	60	,,
Deweli, Tull, &c	5	,,	18	,,
Rice	20	,,	50	,,

The following is another rough estimate of the increase of seed. This affords a fair ground of comparison between different parts of the same country, but in comparing the fertility of different countries it may be erroneous; because superior skill may effect a saving in the quantity of seed, and produce even larger crops on land of only equal fertility.

Bajri	from	125	to	20;	average	36	fold.
Jowar	„	50	„	5;	„	25	„
Kodra	„	110	„	3;	„	40	„
Baota	„	300	„	50;	„	160	„
Barley	„	20	„	5;	„	14	„
Wheat	„	15	„	5;	„	10	„
Pulses	„	24	„	8;	„	20	„
Rice	„	100	„	25;	„	50	„

Markets, Roads, &c.

There are several little Towns in the Cherotar, which afford the cultivators a constant market for their produce of every kind. For its conveyance there is a cart road between every village, and though often very sandy and heavy, it is always passable, and easiest perhaps in the monsoon. This is a peculiarity, and an advantage attaching to the white soil: the roads over the black soil are always impassable by wheeled carriages after heavy rain. The carts of the Cherotar are small and ill made. The wheels are very broad, in order to adapt them to the sandy roads, and therefore their appearance is perhaps more clumsy than it otherwise would be. These carts are long and narrow, such as are here called Rurocwa. Those which come down from Malwa and Mewn, and those used in Khatiawar are very superior to the Gujarat carts. They are called the Pat Garoo, and carry nearly a hundred maunds, or about four thousand pounds; the platform is made to extend beyond their wheels, and it is thereby rendered much more capacious. In the Khatiawar carts, the platform is quite flat, but in those of the northern and eastern provinces, it is curved or rather arched, a contrivance which must add much to its strength. The only cattle used for draught are oxen, which, in the Cherotar, are of the Pattan breed, the largest and finest perhaps in India.

ART. VI.—*Abyssinia, Eastern Africa, and the Ethiopic family of languages, reviewed.* By the Secretary.

The Church Missionary Society of England, influenced by nobler views and higher motives than that superstitious credulity and sectarian zeal, which, in the end of the fifteenth century, led the Portuguese to select Abyssinia and the Eastern Coast of Africa as a field for Missionary labours, wisely turned its attention to the Abyssinians in the year 1829; since which time the Rev. Samuel Gobat's Abyssinia, the Journals of Messrs. Isenberg and Krapf, and the excellent *Amharic Dictionary* and *Grammar* of the former, with the vocabularies of the *Dankali* and *Galla languages*, have added much to our knowledge of the Geography and Ethnology of this interesting quarter: where the Abyssinians, already Christians, and possessing the *elevated plateau* of S. E. Africa, with a fine climate and productive country, naturally claim our sympathy and interest. Neither must we omit to notice Dr. Edward Ruppell's travels in Abyssinia, Sir William Harris's Highlands of Ethiopia, Johnston's travels in Abyssinia, Ignatius Pallame's travels in Kordofan, and Dr. Beke's Geographical communications to the London Society; which, while they bring prominently before us the claims of these countries to public notice, leave much to be desired, as yet unexplored, relative to the physical aspect and geology of the several countries, and the Ethnological relations of their inhabitants and tribes. It is almost a subject for regret that England and Englishmen should have borne so small a part in elucidating their Physical Geography and Ethnology; and relative to the Botany, Zoology, and local Geography of Abyssinia, we may expect to receive much additional and accurate information from the labors of the French Naturalists, M. M. Petit, Quartin—Dillon, and M. Vignaud, who, during the scientific expedition, commanded by M. Lefebvre, and sent into that country about five years ago, made extensive Botanical and Zoological collections, of which the results have not yet become public. M. D' Abbadie has supplied us with the most interesting account we have yet received of the Abyssinian family of tribes and languages; while Mr. Salt's vocabularies of languages spoken in Eastern Africa, and the publication, by the Royal Geographical Society of London, of Dr Beke's dialects of Abyssinia, may in some measure serve to redeem the character of our

countrymen from absolute indifference to this extensive and highly curious field of Ethnological research.

Abyssinia is an Alpine region of mountains, consisting of an immense *plateau*, of which the mean elevation ranges from 5,000 to 8,000 feet, and presents on its eastern and southern quarters, towards the Red Sea, and a portion of S. E. Africa, two great steeps. The lower country bordering the former, and resembling in many respects the low country on the opposite coast of the Red Sea, or the *Arabian Tahama*, is a sandy inhospitable region called *Samar*; from which the traveller ascends the lofty hills of Assauli and Taranta into the Upland, or North Easterly Abyssinian province, called Tigré, of which Adowa is the present capital; though Axum be the more ancient and interesting one, which gave the name of *Axumite* to all the inhabitants of this quarter who spoke the *Géz* language, or original dialect of the Ethiopic, into which, soon after the Nicæan council, the sacred scriptures were translated. This Province and the neighbouring one of Amhara westward are divided into several districts, the general character of which is mountainous, varied by deep and abrupt vallies; where the fountains of the rivers Mareb, Taccazé, and Abai, or Bahr-al-Azrak, commonly called the Blue Nile, discharge their waters north-westward into the plain of Senaar, and join the Bahr-al-Abiad, or White River, at Khartum. This is the most southern limit probably of the Ancient or Lower Ethiopia; which, from the time of Juba to the Emperor Diocletian, was inhabited by tribes of wandering Arabs, called *Blemmyæ*, mixed with the African *Nobatæ* or Nubians. The general character of *northern* as well as *southern* Abyssinia is much alike, and consists of extensive undulating plains, traversed by higher mountain masses, deep vallies, and numerous rapid torrents, which uniting their waters, in their course over the elevated *plateau*, become at length rivers of magnitude, flowing to the north-west. In *southern* Abyssinia, however, the general decrease of steepness and inclination of the country is in an opposite direction, or to the south-east, so that the rivers Hanazo*

* The separate existence of the *Hanazo*, except as an affluent of the *Hawash*, (*Journal of the Royal Geographical Society*, *Vol.* xiv *p.* 72) has been lately called in question by the Rev. Mr. Trew, who thinks that the *Hanazo*, as the recipient of the *Milli* and *Ala*, may be identified with the *Hawash*. Ludolph, however, on the authority of Gregory, positively asserts that the *Hanazo* rises in the Abyssinian province of Angot, and the *Hawash* near Fatagar, situated more southerly; and there is much reason for thinking that this infor-

Hawash, and Wabi terminate in three salt water lakes on the eastward; while the Juba, or Gojab, joined by its affluent the Kibbi, opens to itself a passage on the Coast of Zanzibar, and debouches in 0° 30′ south latitude.

The Wabi and Gojab rather form part of South-Eastern Africa than of Abyssinia: which latter country, from its graduated elevation, approaches in climate to the temperate countries of Europe; while in its valleys many tropical plants are produced, which assimilate its vegetable productions with the hottest parts of India. Some of its most elevated districts, as the *Tulba Waha* mountains of Gojam, and the Provinces of Simen and Lasta, possess a very cold climate, and are visited by tempests of rain and thunder; during the prevalence of which *hail* sometimes falls in large lumps, and is known by the name of "*Seredo*." The low lands along the coast of the Red Sea, known by the name of *Samar*, or pastoral districts, and those, on the south-east, occupied by wandering tribes of Gallas, are parched with extreme heat; except during the period of our winter from November to March.

The mountains on the eastern side of Abyssinia, and which are not far W. of Ategerat, in latitude 14° 16′ 26″ north, are elevated more than 8,000 feet above the sea, and form the water-shed between the Takazé and those streams which flow east-ward to the Red Sea. From Ategerat Dr. Ruppell, on the 1st of June 1832, saw the snowy tops of the mountains of Simen, and confirms an event, mentioned by the Adulitic inscription of Cosmas Indicopleustes, that Ptolemy Euergetes had subdued Northern Abyssinia, and "Semene, among mountains difficult of access and covered with snow." The water-shed between the Abai, or Nile and the Hawash and other rivers flowing S. E., has been determined, by Dr. Beke, along a line of nearly fifty miles northward of Ankober; and appears to exist in the Chaka mountains, which give rise to an affluent of the Abai called Chaka.

In the Ethnography of Abyssinia we obtain a connecting link between the Semitic tribes of Asia and Chamite nations of Africa; and though the

mation is correct. The *Wabi* is the same river as that which has been called, by Lieutenant Christopher, Haines River; and the *Juba*, or *Gojab*, is that which is called by Ludolph the *Zeb*: which is said to rise in the Province of Enarea, and after embracing the adjoining country of Zendero, or as Dr. Beke calls it *Fungoro*, falls into the Indian Ocean near Mombas.

publications of Messrs Isenberg and Krapf, the vocabularies of Dr. Beke, and the communications of M. D' Abbadie, afford ample means of comparison, the subject is yet far from being exhausted, and definite classification is perhaps premature, if not impossible. Two physical types, however, according to Dr. Ruppell, seem prevalent among the Abyssinians, from which he excludes the Gallas and Sizangallas, as they are distinct from the original Abyssinian race. The first of these types, allied to the *European*, and characterizing those woolly haired races of Africa, with round faces and rather thick lips, exhibits the transition from the Negro to the Syro-Arabian type of countenance; and the latter being altogether of the Negro type, distinguishes all the black races, which, under every variety of aspect and of colour, are classed by the Arab Geographers from the *Zangi* to the *Nuba*, and is denominated *Ethiopian*. A round or oval face, a pointed nose, a well proportioned mouth, moderate thick lips, and lively eyes, resembling the Bedwins of Arabia, mark the former type of countenance, which pertains to the inhabitants of the high mountains of *Simen*, the *Agaus*, the *Falashas* or Abyssinian Jews, and the *Gimant* inhabiting Woggera, and the neighbourhood of Gondar. The *Ethiopian* type, represented by a somewhat flattened nose, thick lips, dull heavy eyes, strongly crisped and almost woolly hair, marks the wandering tribes of *Bisharin*, the *Ababdeh*, and *Berbers* of the Nile: between whom and the modern *Copts* a remarkable similarity of physical aspect may be traced, while the grammatical peculiarities of their various dialects show them to be of one original stock; though the latter, by their more frequent admixture with races of Semitic origin, approach nearer to the modified *European* type.

The following Table of dialects, spoken by the several tribes who were or now are in possession of the countries of Abyssinia and the Nile, will enable us to establish, however imperfectly, such a classification as may be useful in tracing the historical changes that have taken place in these regions, and in investigating the difficult subject of Abyssinian Ethnology. In our yet imperfect knowledge of many dialects, spoken by the tribes of Central Africa, the assumed classification of their cognate affinities may be premature, and perhaps erroneous, but we adopt it in the absence of a more perfect one, which time and further investigation can alone supply.

The *Bisharin* and *Ababdeh*, placed on the northern confines of

Abyssinia, and occupying part of the eastern Nubian desert, between the Nile and the Red Sea, extend along the latter; from Lat: 16° to 24° north, and neighbourhood of Koseir. They are the descendants of the *Beja*, or the Bajadita, a nomadic people, who inhabited the Egyptian desert eastwards, and are called, in the Greek inscription of Aezana, king of the Axonites and Homerites, Bougaei* ΒΟΥΓΑΕΙ; who possessed the gold, silver, and emerald mines of that quarter. Their language, which is of importance, and has been made the subject of learned comment, by Lepsius, in the proceedings of the Berlin Academy of Science,† has much in common with the grammatical system of the Coptic, and has adopted some of its words, while it borrows frequently from cotemporary dialects of the *Falasha* and *Agawi*. It has, above all other living languages a title to be styled Ethiopian; and was probably the cultivated dialect of Lower Ethiopia, when Ergamenes was king of that country, and the soldiers of Candace, queen of Meroe, were driven back from Assuan by the Roman and Greek troops of Ælius Gallus. M. Lepsius is of opinion that this is the language of the inscriptions, recording public acts of the government of Meroe; and which are abundantly met with in various localities of the Nile valley as far northward as Philæ.

The marked affinity of this language with the Coptic is characterized by its making use of the same signs, for the masculine and feminine, as the Egyptian; namely *b* in place of *p* for the former gender, and *t* for the latter. Like the Arabic and Giz, the Bisharin or Beja language, not having *p* in its original alphabetical system, substitutes *b* in its stead for the masculine article, which, after the manner of the Copto-Egyptian language, is frequently transformed into the indefinite article *ou*; though most of the words are made feminine and the definite article *t*, prefixed. The *Amazigh*, or ancient Lybian speech of the wandering tribes of the Sahrá, (or great desert,) manifests the same fondness for the use of the feminine article *t*, or *th*, as is observable in the Beja language; and this is one among other proofs shewing the cognate origin and original connexion of the *Berabras* of Egypt and the Nile with the *Berbers* of Mount Atlas, and Western Africa. Ibn Khaldún, in his history of the

* See account of the Himaiyaric Inscriptions in the Journal of this Society Vol.—II page 34.

† See meetings of the Academy, for Nov.—1844, reported in L' Institut des Société's savantes en France et a l' Etranger, No 115-116 Juil—Aout 1845.

Berbers, has examined this question with much care and learning, and maintains decidedly the opinion of this affinity, and that the *Berbers* are brothers to the Abyssinians, Copts, and Nubians;* while others have denied this affinity, but on insufficient grounds.

In Beja or Bisharin the word for *sun* is *toín*, consisting of the feminine Coptic article ⲧ with ⲟⲩⲟⲓⲛⲓ *light*, being when thus compounded *t—ouoini*, signifying *the light* or *the sun*. Both in Coptic and Bisharin the original word, without the article, is the Hebrew and Arabic עין *Ayn*, signifying *the eye* and *the sun*, or the source of vision; similar to the Coptic word ⲣⲉ *re*, *the sun*, of which the original appears to be the Hebrew *rah* רָאָה, *to see*, or the *source of light*. The Beja word however for *the eye* is *tolele*, which is a compound again of the Egyptian feminine article *t*, with the original *yel*, *wal*, or *il*, of the *Agowi*, *Amazigh*, and *Somali* languages. The Bejawi *toy*, or *the day*, is also an evident corruption of the Coptic *ta-hoou*, which has the same signification: and other cognate affinities of these two languages might be given, though those quoted will be sufficient for the present to establish the validity of the opinion here adopted, that *Coptic* and *Bisharin* are languages of the same original stock, and that the latter is the latest derivative.

In the tenth and eleventh century of our era, the capital of the Beja territory was *Aizab*, or *Aidab*, عيذاب, situated more than a degree and a half south-wards of the ancient Berenicè; or in latitude 22° 8′ N; on the western shore of the Red Sea. In the time of the geographer El Edrisi, A. D. 1154, it was a city and emporium of considerable importance, where a deputy of the Egyptian Sovereign and of the Beja Chief resided to collect the revenue, and divide it equally between these two ruling powers.† The Bejas, and their descendants the Bisharin and Ababdeh, are of the same original stock as the *Blemmyæ* of the Romans, who, according to Strabo, were below the parallel of Meroe, possessing, along with the *Megaburi*, the whole of the eastern bank of the Nile, towards the Red Sea; while the western bank of the river was possessed by the Nubæ, a great nation of Lybia, not subject like the former to the kingdom of Ethiopia, but obeying several distinct governments of their own. The same authority informs us that the Egyptian exiles, who

* See Travel's of Ibn Batuta, translated from Arabic into English by the Revd. Samuel Lee B. D. p: 17.

† Edrisii Africa: Curavit Joannes Melchior Hartman, p: 78.

revolted from the authority of Psammiticus, as recorded in a Greek inscription, yet existing on the leg of one of the colossal statues, in front of the great cave of Abu-Simbal, were named *Semberita*,* or the strangers, and inhabited an island, or peninsula, distinct from Meroe, situated, as appears, between the Atbara, or Oriental branch of the Nile, called Astaboras, and the Astapus or modern Abai, which had its source from a lake on the south.† This emigration from Egypt into Ethiopia is mentioned by Herodotus ;‡ who calls those who migrated Egyptian warriors, instigated to revolt, as would appear, in consequence of the marked preference shewn by Psammiticus II. (B. C. 600) to the Greek mercenaries, who had restored him to his throne and kingdom; while his Egyptian subjects were disparaged, by being placed on all occasions on the king's left, and the post of honour on his right assigned to the Greek troops. Thus, with the arts and manners of Egypt, this migration seems to have introduced civilization, if not the Coptic language into Ethiopia: and it is a subject of much interest to trace the yet existing remains of this Egyptian dialect in the Beja and other African languages, of which the *Amazigh* is probably the most ancient. This latter language only exhibits, however, remote resemblances to the Arabic, though the voice of tradition is agreed that the Berbers of the Nile and those of Western Africa, are descendants of Kush, who was the brother of Canaan, though Arab authors call him his son.— It is impossible, perhaps after a lapse of more than two thousand eight hundred years, to find intimate cognate affinities between the Coptic, Arabic, Amazigh, and African dialects, though it be certain that in the time of Shishak, king of Egypt, and Rehoboam king of Judah, B. C. 970, the *Cushim* were in possession of Lower Ethiopia, and are mentioned, in II. Chronicles, ch: XII. ver: 3rd, along with the *Lubims* and *Sukkiims*, or the *Lybians*, and *Troglodytes*, west of the Red Sea.—Soon after the times of Isaiah, ch: XLV. ver: 14, a branch of the Syro-Arabian people, with the name of *Cushites* migrated, B. C. 769 to 720, from the kingdom of Midian, in Arabia, to the western shores of the Red Sea; and from this period frequent migrations to the same quarter of the Syro-Arabian family seem to

* This is a derivative compound word, from Coptic, namely *shemmo*, a foreigner, and *beri*, new, meaning "new comers."

† Strabonis Rerum Geographicarum Liber Decimus Septimus, par. 2.

‡ Herodotus Book II para: xxx.

have taken place, and to have introduced into the African dialects a great many Semitic words.

The *Amazigh*, besides making use of the Coptic *article*, and *prefixes* for the cases of nouns, exhibits a well marked affinity between its pronouns and those of the Coptic: and, having several words in common with the *Kanuz* and *Nuba* dialects of the Nile, these three languages may be most appropriately classed as a *Lybian family*, distinct from, but not altogether unconnected with the *Egyptian*; since Herodotus tells us that the languages of the Ammonians, or those inhabiting the Oasis of Siwah, (Al-wah) west of Egypt, was a mixture of that of Egypt and Ethiopia.* The following are some of the best marked affinities of the *Coptic* and the *Amazigh* pronouns:

English	*Coptic*	*Amazigh*
he	netof	netoo
she	netos	nettath
they	nethou	nateen
to thee	nak	enak
to him, to her	nas	enas
to us	nan	nanna.

These are sufficient to establish the remote affinity and connexion of these very ancient languages, the modern dialect of which, called *Ertana*, spoken by the wandering tribes of Towarik inhabiting *Siwah* and *Angila*, or Eastern portion of the Sahrá (great desert,) is closely allied on one side to the *Amazigh* and to the *Coptic* on the other, while it has many words in common with the Kanuz and Nubinga dialects. In the Ertana *aman* signifies *water*, and *ázail* or *asal* the *day*; while in Kanuz these words are respectively *amanga* and *asalki*, having terminations that are peculiar to the latter dialect. Again the Coptic word *eiôt*, which signifies father, appears in the Ertana with the article as *teeat*. We might multiply examples of the cognate affinities of these dialects, with a view of establishing the *Lybio-Egyptian* origin of the tribes speaking them; and in this opinion we are indeed supported by the voice of History and Geography: for both Pliny and Pomponius Mela† call the people *Libægyptii*, thus plainly asserting their mixed origin.

* Herodotus Book II. paragraph XLII.

† Pomponius Mela, who wrote a book on Geography, flourished about the forty fifth year of the Christian era, and preceded Pliny more than thirty years. The words of the latter, relative to the situation of the *Libægyptii*, are, "Interiori

The next family group of languages has a better and more exclusive title to be considered *Abyssinian*, as having occupied at one time the whole of this ancient kingdom, north and south, previous to the irruption from the south of the pagan Gallas; who, under their leader Mahomed Gnan subdued the southern Abyssinian province of *Fatagar*, about the year of our era 1526, and soon after overran the whole of Shoa Proper, or southern Abyssinia, including the districts of *Shoa, Efat, Giddem, Efrata Geshe, Waraba*, and other places situated N. W. of the river *Howash*; while various other African tribes got possession of the yet more southerly districts of *Zingéra* or *Yangara, Enarea, Kaffa, Worata*, and *Wolaitza*, situated near the sources of the various affluents which flow southwards to form the river Gojáb. The oldest member of this Abyssinian family of languages, styled *Giz*, is a very pure dialect of ancient Arabic, closely allied to the Arabic dialects of *Mahrah*, and those spoken by the mountainous tribes of southern Arabia dwelling near *Hasik, Morbat*, and *Zofar*; and approximates much more to the *Hebrew* and *Syriac* than to the *Arabic*. It appears to have been the prevailing language of the country at the time the Abyssinians were converted to Christianity; and being of *Syro-Arabian*, or Semitic origin, has been improperly termed *Ethiopic*: an appellation which belongs more appropriately to a nation of mixed Egyptian race, situated on the banks of the Nile, between Khartum and the parallel of Assuan or the ancient *Syené*. These are the *Ethiopians Proper*, who spoke the same language and worshipped the same gods as the people of the Thebaid, or Upper Egypt; and who, in the time of Ptolemy Evergetes, were ruled by their king *Erkamen* or Ergamenes, whose name, in Hieroglyphics, is written along with that of Ptolemy, on the temple of Dakkah in Nubia; to the east of which that chain of mountains, running across the eastern desert to the Red Sea, may be said to begin; and is now in possession of the Bisharin, who are the modern representatives of the true Ethiopians. From the first conquest of the country along the banks of the Nile, from *Syené* to *Meroé*, this territory appears to have been debateable ground between the Greek and Roman rulers of Egypt and the Ethiopians; with whom various tribes of nomadic Arabs, or *Troglodyta*, were mingled soon after the

ambita Africæ, ad meridiem versus, superque Getulos, intervenientibus desertis, primi omnium Libegyptii; deinde Leucæthiopes habitant. Super eos Aethiopum gentes Nigritæ, a quo, dictum est, flumine. Plinius lib. V cap. VIII.

latter people had been rendered tributary by Ptolemy Evergetes. In the reign of Diocletian, A. D. 283, these nomadic tribes of *Ethiopian Arabs* had become so formidable and harassing to the Roman garrisons of Upper Egypt, that the Emperor made a treaty with the *Blemmyæ* and *Nobatæ*, who engaged to defend the frontier in consideration of an annual sum of gold paid to them: and from these once formidable marauders are descended the Kanuz and modern Berbers of the Nile.

The *Habash* or Abyssinians, whose Arabic designation denotes a people of mixed origin, have therefore improperly assumed to themselves the name of *Itiopiaoan*, or Ethiopian: and appear not indeed, under their first national appellation of *Axumita*, much before the time of Frumentius, A. D. 325, when they were converted to the Christian faith; though *Aeizana's* Greek inscription, at Axum, dating so late as A. D. 356, shews them to have been still pagans and worshippers of the Grecian deities. In the beginning of the second century of our era, Arrian, in his Periplus of the Erythrean Sea, makes mention of the royal city of the *Axumitæ*; of which and the neighbouring country of Barbaria Zoskales was sovereign, an accomplished prince well acquainted with the Greek language and literature. Not long after this period *Aeizana* had reduced to his power the scattered tribes of the desert; among which, in Salt's Greek inscription from Axum, are mentioned the Bejas, and Taguie or people of Taka, who are situated N. W. of Arkiko, between the river Takazé, and the Red Sea. If we may credit the authority of Masudi, this *Aeizana* or *Azaneah*, of the race of the Amalekites, and the son of *Samaida*, was appointed by the Romans king of the Axumites; and soon after carrying his arms into southern Arabia, he rendered tributary the race of *Hamaiyar*, and their king Zu-Yazan:* and this information is indeed confirmed by the Greek inscription, wherein *Aeizana* is called king of the Axumites and Homerites. Not long after this period, during the reign of the Emperor Justinian A. D. 528, the Homeritæ having quarrelled with, and killed some of the Alexandrian merchants, engaged in the Indian trade, the Axumitæ, or Abyssinians, un-

* Maasudi, on the Arab tribes of the desert, in his "Meadows of gold and mines of jewels." He erroneously makes Zu-Yazan, a king of the Homerites, cotemporary with *Aeizana*: for he was, as would appear, the son of Zu-Nawaas, and cotemporary with Caleb the Abyssinian Emperor who subsequently invaded Arabia.

der their chief *Elesbaan* again made war on the *Hamaiyar Arabs*: at which time, as would appear, Nonnosus was sent by the Roman Emperor on an embassy to both people. From the history of this Mission we learn that while Elesbaan* ruled the Abyssinians, Kais his cotemporary governed the Arab tribes of Chinda and Maad on the opposite coast:† and about the same time John, a man of piety and character, was sent by Justinian to be Bishop of Axum and Abyssinia.‡ The Ethiopic inscriptions on the reverse of the Greek tablet at Axum, have reference to this event, and record that John taught from the neighbourhood of the River (Nile) the Sabeans of Hazramaa; but the two several invasions of Arabia by the Abyssinians have been confounded together in the history of the country; and the king Atsbeha, or *Aeizana*, is erroneously identified with Caleb who reigned after him several years.

The modern inhabitants of Tigré, or the chief district of Northern Abyssinia, speak a corrupt dialect of the ancient *Giz*; which was the vernacular dialect of the Agazi, who founded the kingdom of Axum, and were the original of that mixed race known by the name of *Habash* or Abyssinians; of whom the greater part were of Syro-Arabian origin, as proved by the cognate affinities of their language and by history. The early connexion and commercial intercourse of the people of this country with those of Southern Arabia, will sufficiently explain the extension of the Jewish religion and customs throughout this country, with the introduction of the syllabic form of the *Hamaiyaric* alphabet: which, as a derivative from the *Phœnician*, was employed by the Abyssinian Jews and Christians for the publication of the Holy Scriptures into *Giz* or Ethiopic, after the former had learned the use of Greek vowel signs from reading the Septuagint, or Greek version of the Bible.§ How long the Agazi had existed as a nomadic tribe, previous to their asso-

* This appears to be a title and not the name of the Abyssinian king then reigning, who was Caleb; and is composed of the Arabic article *El*, and the Giz word *Atsbeha*, the blest. It was also given to *Aeizana* two hundred years previous to this time, and hence has arisen the confusion which exists in Abyssinian history relative to the accounts of the two separate invasions of Arabia by the Abyssinian kings.

† Nonnosi Historia legationum, in Photii Bibliotheca page: 6.

‡ Bibliotheca Orientalis Assemani vol. N. p: 453.

§ Origin of the Hamaiyaric and Ethiopic Alphabets in this volume of the Journal page, 66.

ciation with other neighbouring tribes under the Government of Axum, and their subsequent conversion to Christianity, is, in the absence of any authentic history of their early condition, a matter of doubt. They are first mentioned in the Adulitic inscription of the time of Ptolemy Evergetes; who, from the Greek inscription discovered amidst the ruins of the ancient Berenice,* and his name in hieroglyphics on the temple at Dakkah, already mentioned, is known to have subdued and rendered tributary the true Ethiopians of this quarter. While some have affected to doubt the truth of events recorded in the Adulitic inscription, it is wonderfully confirmed by the records previously mentioned, for Ptolemy appears to have extended his dominion over Lower Ethiopia, and into the country now called Abyssinia. Along with the nation of Gazé are mentioned the Ath-agai or Agaus, the Bega or Bejas, the provinces of Agamé, Ava or Avergale,† Samen, and others now forming parts of Northern Abyssinia.

The Agaazi kings of Axum being succeeded by the Zagean family, about A. D. 925, the seat of government was removed from Axum to Lasta, while a descendant of the original royal race fled to Shoa. Three hundred and thirty years after this period, or A. D. 1255, the banished representatives of the Agaazi royal family were restored to the throne of their ancestors, in the person of Ieon Amlac; when the Amharic or modern Abyssinian dialect, which prevails in Shoa, and in the province called Amhara, situated between *Shoa*, *Gojam*, *Baguemeder*, *Lasta*, and *Angot*, came into common use, and to the exclusion of the *Giz*; of which it is a derivative, and from which it has borrowed the twenty six *Giz* consonants and seven orders of letters, with the addition however of seven peculiar orders of letters, which serve to express sounds not existing in the *Giz*, but which are familiar to the surrounding African dialects from which the Amharic has adopted forms and words. It is not, as Mr. Isenberg observes in his Grammar, an original but a derived language; presenting all the characteristic features of Arabic and other Semitic languages, in the prevalence of biliteral, triliteral, and quadriliteral forms, though not in equal force as its parent the *Giz*. It enters extensively into the Adari language or dialect of Har-

* Wellsted's travels in Arabia vol. ii. page, 327.

† On the eastern bank of the river Takazé, and inhabited by a tribe of Agaus.

rar, south-west or *Zaila;* into that of Gafat, spoken in the southern parts of Damot and Gojam; and into that of Argobba, on the eastern and north-eastern skirts of Shoa. To any one acquainted with Hebrew or Arabic it will be a comparatively easy task to acquire a knowledge of this language through the aid of Mr. Isenberg's well arranged Grammar and Dictionary; which will be of invaluable assistance to future Missionaries and Travellers sent to enlighten and explore Abyssinia. Monsieur D'Abbadie, in his account of the Abyssinian languages, considers Ambaric a *sub-semitic* dialect, and the Agawi *kamtonga*, or a genuine African dialect; in which opinion he appears to be correct.

The next class of languages, named Shoho-Dankali, belongs to a people occupying the tract of country between the Abyssinian *plateau* and shores of the Red Sea; the original tribes of whom, named Shoho and Hazzorta, mingle with the Habab and Bisharin on the north, in the latitude of Arkiko 15° 40′. From thence they extend south-wards to Tadjurra, in latitude 11° 58′; where they join the Somal and Itoo Galla tribes; who appear to speak languages of the same original family as the Dankali; considered both by Isenberg and D'Abbadie to be *sub-semitic* in their origin. The latter has analyzed the grammatical structure of the Shahawi dialect, and acquaints us that the word *Shoho* is a Tigré word corresponding in meaning to *nomade;* though the people who speak this dialect and the corresponding one of *adali* near Tadjurra, call themselves *Afar* عفر, which may be a corruption of the Arabic *Asfar* اوفر signifying red, and may have been applied to designate the red Nubian race from which the *Danakil* people drew their lineage; which they trace to ancestors who descended from the highlands of Abyssinia. The cognate affinities between the words and numerals of these three languages may seem to justify the opinion, that the *Somali*, who inhabit the coast of Berbara from Zaila to Cape Hafun, and the coast of Ajan from thence south-wards to the mouth of the river Gojab, are of the same original stock with the Danakil and Gallas: but we have reason to believe, from both philological and historical evidence, that the *Somalis* like the *Adail*, or southern tribes of the Danakil, are chiefly of Arabian origin, and descended from Arabian tribes; who, according to Makrizi, fled from Aden Hej: 611, A. D. 1214, and traced their origin to Ali the son of Jafar Sadik. It is for this reason that the Ad-ali, or royal tribe of the *Southern Danakil* have obtained for all

the tribes the general name of Adail, and caused *Zaila*, the capital of these Mahomedan Arabs, to be generally known, in the beginning of the thirteenth century of our era, by the name of Adel. Ibn Said-al-Maghribi, quoted by Abulfeda, and who visited Egypt, A. D. 1250, says that they were then ruled by Shaikhs; and that in Hej: 617, A. D. 1220, that irruption of the *Dawadem*, or Tartars of Soudan, first took place, by which the kingdoms of Nubia and Abyssinia were overrun and ravaged. By the *Dawadem* of the Arabian Geographers and Historians, no other but the Galla tribes can be meant; and Ibn Said-al-Maghribi acquaints us that at this time they issued from the south, where their original country was situated between the equator and two and half degrees of north latitude. It is from this period that the intercourse between the Danakil and Galla tribes took place, by which the *Shawi* and *Adail* dialects of the former became adulterated with Galla words.

Arabian writers extend the name of *Jiberta* to the province of *Efat*, or *Wafat*, and the six other provinces composing the once flourishing kingdom of Adel; which, in Hej: 700, A. D. 1300, or about the time when the Agaai royal family of Abyssinia had been restored, was ruled by Sabr-ad-Din surnamed *Walshama*, a tributary of the Christian Abyssinian Emperor: between whose successors and their Mahomedan subjects, a fierce war broke out, which in the beginning of the sixteenth century of our era led to the division and ultimate ruin of the Abyssinian kingdom, that opened to the Gallas an opportunity of subduing its southern provinces, and obtaining the superiority already noticed.

In the national character of the Danakil, who are Mahomedans, excepting a small Christian division named *Tultal*, considerable difference between the northern and southern tribes is observable. Mr. Isenberg describes the former as generally vigorous, robust, fierce, and boisterous; while the latter are of shorter stature, of less expressive countenance and vigorous constitution, being shy, timid, and reserved. Between them and the *Somali* tribes, who are also Mahomedans, and have adopted Indian words into their language, there is a marked resemblance of physical aspect and general character. Most of the *Somalis*, who lead a Bedwin life, and are strictly a race of shepherds, without fixed habitations, are said to resemble the Arabs of Nejd. The Gallas who call themselves *Ilma-Orma*, or children of a foreign race, differing from the Abyssinians, seem to be of an intermediate physical type, between the

Arab and the Negro. They consist of numerous tribes, occupying the country on the north and west behind the Somalis and the Adail; and are generally Pagans, though some of the tribes have embraced Islam. Their religion is a monotheism defaced by many superstitious notions. They adore a Supreme Being, *Wak*, (originally heaven,) possessing all the attributes of God, whom they worship by prayers and sacrifice; they are much given, like the Shamanists among the Tartars, to the practice of astrology and augury. Their priests are named Kalitshas, who go about carrying with them a whip and bell; and their occupations are chiefly agricultural and pastoral, though in some of the villages, weavers, tanners, potters, leather cutters, and metal workers, to provide the necessaries of civilized life, are occasionally met with.

In grouping together the language of the Shangallas, or Negroes of the Takazé, and the dialect of Googa, a small and low district south of *Bure*, along the river Fatzam in the province of Damot, we have assumed rather than ascertained their cognate affinities, and place them together as a *Soudanian* or Negro family. The natives of Gonga, according to Dr. Beke's information, retain a tradition of their former existence as a separate state, and occasionally apply the name of Gonga to the low country on both sides of the river Abai,* in the southern quarter of Damot before mentioned. The Gonga word *aba*, signifying *sun*, is an evident corruption of *awa*, or *wa*, found in several African languages with the signification of the *sun* or *fire*; and has been doubtless derived from the Giz word *waayd*, which means a *burning fire, or fervent heat*. But the specimens of this language, now in our possession, are yet too few for instituting any satisfactory comparison of it with other African dialects, such as those of *Kaffa*, *Woratta*, and *Wolaitza*, which are said to be closely connected with it. It is not improbable, however, as Dr. Beke supposes, that S. W. from Goragie, where the cognate dialects of the Amharic seem to terminate, there was previous to the irruption of the Gallas, one original language prevailing throughout the table land, now occupied by these invaders; and that this was cognate with both the Shangalla and Gonga languages.

From the mouth of the river Gojah, or Juba, to Cape Delgado, and tenth degree of southern latitude, the coast of South-eastern Africa is inhabited by Mahomedans; who are of mixed Arab and Negro race, and

* Journal of the Royal Geographical Society of London, vol. xxiv. p. 39.

are named *Sowahilis*, or inhabitants of the Coast. Their language is called Sowahili, and is a derivative from the dialect spoken by the *Makua* Negroes, who inhabit the Coast of Mozambique, from the mouth of the Zambezi river to the neighbourhood of Melinda; where they are intermixed with and lost in their descendants the Sowahili race. The Makuas are, as would appear, a branch of the Monjous, a Negro nation of the interior which figures in the early Portuguese accounts of this Coast as part of the celebrated kingdom of Mono-Motapa: relative to which and the former state of commerce on the Coast of the Golden Sofola, many questions of deep interest are open to the investigation and research of future travellers.

Art. VII. — *Hygrometric Tables.* By Professor Orlebar.

Professor Apjohn's formulæ and determinations being now satisfactorily established, and the British Association having determined that barometric observations might now be corrected for moisture, I caused tables to be formed from those calculated by Major Boileau in order that our observations might be reduced at a single inspection. The use of the Observatory was the only object which I at first had in view, and tables II and III were formed entirely for ourselves. Subsequently I considered that by forming table I, I could very much facilitate the calculations of observers and surveyors at greater heights. And as these three tables will, I think, be of considerable assistance to meteorologists and also facilitate very much the use of the barometer in determining heights, it seems to me that they may be published in the Society's Journal with considerable advantage to the public.

Major Boileau's elaborate tables are calculated to five places of decimals, mine only to three; because barometric observations are taken only to the third decimal of an inch, and our thermometers are not made with sufficient accuracy to warrant at present any closer calculation.

In order to use Major Boileau's tables it is necessary to use three tables; my object was to combine all these into one.

Upon these two principles I have formed the present tables in order to enable an observer by inspection or very easy calculation,

1st to reduce the observed pressure of the barometer to the pressure of dry air.

2nd to ascertain the amount of moisture in the air.

3rd to ascertain the relative humidity.

Where the barometer does not fall below 29.5 nor rise above 30.1 inches, Tables No. II and III will supply all these requisites. These Tables therefore will serve for all places along our sea coast and throughout the low land of Guzerat and Scinde.

The method of using them will be best understood by an example: Suppose the barometer to be 29.746, the dry thermometer 80°.2 and the wet bulb 73°. Hence the depression will be 7°.3—Look along the top of the table for 7° and along the side of the table 73° then opposite to these we find

0.724

Subtract .003 on account of 703

then 0.721 is the pressure and measure of the amount of moisture in the air.

Subtract this from 29.746

then 29.025 is the pressure of dry air. Now refer in the same manner to table III and 0.90 will be found to be the relative humidity of the air on the supposition that saturation is expressed by unity.

In using table II it must be observed that for every tenth of a degree of depression .001 must be subtracted from the number in the tables. In like manner a proportional part must be added for every decimal part of a degree of the temperature of the wet bulb, the amount of which will be easily seen by inspection: thus had the temperature of the wet bulb in the above example been 73°6 then the pressure for 7° depression would have been

0.726 not 0.724.

It is not possible to give a general rule for this correction, because, as will be seen on inspection, the correction for 1° is nothing at low depressions, and as much as .020 at high depressions and low temperatures. This correction will however be easily supplied by the eye.

Table I is made in order to facilitate the calculations of similar

tables to II and III for any particular heights. The table itself will be easily understood after the former explanations. It will be observed that the only depressions calculated are 0°, 10°, and 20°. The interpolation between these will be quickly and accurately performed by the following formula

$$\text{correction} = .01147\ (d—d')\ \frac{p}{29}$$

d is the nearest depression of the table, d' the given depression, and p is the barometric pressure of the table nearest to the barometric pressure of the place. Regard must be had to the sign of d—d' that is, if d be greater than d' the correction must be added, if d be less than d' the correction must be subtracted

Example: Barometer is 24.800 wet bulb 60° the depression is 8°; then the correction

$$\begin{aligned} &= .01147 \times (10°—8°)\ \tfrac{24}{29} \\ &= .01147 \times 2 \times \tfrac{24}{29} \\ &= .01147 \times \tfrac{48}{29} = \tfrac{55.1}{29} \\ &= .019 \end{aligned}$$

but by the table depression being 8 and wet bulb 60°, the moisture pressure is 0.430. Hence the required pressure is 0.430 + 0.019 = 0.449.

I hope that this table will facilitate not only the reduction of meteorologic observations but also enable surveyors to use Barometric observations with greater certainty. For, the inconsistent results between observations in using this very ready method of ascertaining heights are doubtless owing partly to the neglect of other meteorologic conditions, but more especially to the want of certainty with regard to the hygrometric correction.

After thus calculating from Table I a table similar to Table II, the meteorologist will have no difficulty in calculating Table III. He will take the logarithms of the numbers in the columns under 0° depression, and subtract them from the logarithms of the numbers under the other depressions, and the remainders are the logarithms of the numbers which express the humidity.

Tables I and II were calculated wholly by Keru Laxamon. Table III was calculated partly by Keru Laxamon and partly by Dinshaw Dorabjee, assistants in the Observatory.

TABLE I.

Pressure of Moisture under Barometer pressure 20 to 30 Inches for depression and Temperature of Wet Bulb.

t°	20.000			21.000			22.000		
Wet Bulb	0	10	20	0	10	20	0	10	20
50	0·373	0·298	0·223	0·373	0·294	0·215	0·373	0·290	0·208
51	0·386	0·311	0·236	0·386	0·307	0·228	0·386	0·303	0·221
52	0·400	0·325	0·250	0·400	0·321	0·242	0·400	0 317	0·235
53	0.414	0·339	0·264	0·414	0·335	0·276	0·414	0·331	0·249
54	0·428	0·353	0·278	0·428	0·349	0·270	0·428	0·345	0·263
55	0·442	0·367	0·292	0·442	0·363	0·284	0·442	0·359	0·277
56	0·457	0·382	0·307	0·457	0·378	0.299	0·457	0·374	0·292
57	0·473	0·398	0·323	0·473	0·394	0·315	0·473	0·390	0·308
58	0·489	0·414	0·339	0·489	0·410	0·331	0·489	0·406	0·324
59	0·506	0·431	0·356	0·506	0·427	0.348	0·506	0·423	0·341
60	0·523	0·448	0·374	0·523	0·445	0·366	0·523	0·441	0·359
61	0·541	0·466	0·392	0·541	0·463	0·384	0·541	0·459	0 377
62	0·559	0·485	0·411	0·559	0·482	0·403	0·559	0·478	0·396
63	0·578	0·504	0·430	0·578	0·501	0·422	0·578	0·497	0·415
64	0·597	0·523	0·449	0·597	0·520	0·441	0·597	0·516	0·434
65	0·617	0·543	0·469	0·617	0·540	0·461	0·617	0·536	0·454
66	0·638	0 564	0·490	0·638	0·561	0·482	0·638	0·557	0·475
67	0·659	0·585	0·511	0·659	0·582	0·503	0·659	0·578	0·496
68	0·681	0·607	0·533	0·681	0·604	0·525	0·681	0·600	0·518
69	0·703	0·629	0·556	0·703	0·626	0·548	0·703	0·622	0·541
70	0·726	0·652	0·579	0·726	0·649	0·571	0·726	0·645	0·564
71	0·750	0·676	0·603	0·750	0·673	0·595	0·750	0·669	0·588
72	0·775	0·701	0·628	0·775	0·698	0·620	0·775	0·694	0·613
73	0·801	0·727	0·654	0·801	0·724	0·646	0·801	0.720	0·639
74	0·827	0·754	0·681	0·827	0·751	0·673	0·827	0·747	0·665
75	0·854	0·781	0·708	0·854	0·778	0·700	0·854	0·774	0·693
76	0·882	0·809	0·736	0·882	0·806	0·728	0·882	0·802	0·721
77	0.910	0·837	0·764	0·910	0·834	0·756	0·910	0·830	0·749
78	0·939	0·866	0·793	0·939	0·863	0·785	0·939	0·859	0·778
79	0·970	0·897	0·824	0·970	0·894	0·816	0·970	0·890	0·809
80	1·001	0·928	0·856	1·001	0·925	0·848	1·001	0·921	0·841
81	1·033	0·961	0·889	1·033	0·957	0·881	1·033	0·953	0·874
82	1·066	0·994	0·922	1·066	0·990	0·914	1·066	0·986	0·907
83	1·100	1.028	0·956	1·100	1·024	0·948	1·100	1·020	0·941
84	1·135	1·063	0·991	1·135	1·059	0·983	1·135	1·055	0·976
85	1 171	1·099	1·027	1·171	1·095	1·019	1·171	1·091	1·012
86	1 208	1.137	1·065	1·208	1·133	1 057	1·208	1·129	1·050
87	1·246	1.175	1·103	1.246	1·172	1·095	1·246	1·168	1 088
88	1·286	1·215	1·143	1·286	1·211	1·135	1·286	1·207	1·128
89	1·326	1·255	1·184	1·326	1·251	1·176	1.326	1·247	1·169
90	1·367	1·296	1·225	1·367	1·292	0·217	1·367	1·288	1·210

TABLE I. — *Continued.*

t°	23.000			24.000			25.000		
Wet bulb	0	10	20	0	10	20	0	10	20
50	0·373	0·286	0·200	0·373	0·282	0·192	0·373	0·279	0·185
51	0·386	0·299	0·213	0·386	0·295	0·205	0·386	0·292	0·198
52	0·400	0·313	0·227	0·400	0·309	0·219	0·400	0·306	0·212
53	0·414	0·327	0·241	0·414	0·323	0·233	0·414	0·320	0·226
54	0·428	0·341	0·255	0·428	0·337	0·247	0·428	0·334	0·240
55	0·442	0·355	0·269	0·442	0·351	0·261	0·442	0·348	0·254
56	0·457	0·370	0·284	0·457	0·366	0·276	0·457	0·363	0·269
57	0·473	0·386	0·300	0·473	0·382	0·292	0·473	0·379	0·285
58	0·489	0·402	0·316	0·489	0·398	0·308	0·489	0·395	0·301
59	0·506	0·419	0·333	0·506	0·415	0·325	0·506	0·412	0·318
60	0·523	0·437	0·351	0·523	0·433	0·343	0·523	0·430	0·336
61	0·541	0·455	0·369	0·541	0·451	0·361	0·541	0·448	0·354
62	0·559	0·474	0·385	0·559	0·470	0·380	0·559	0·467	0·372
63	0·578	0·493	0·407	0·578	0·489	0·399	0·578	0·486	0·392
64	0·598	0·512	0·426	0·598	0·508	0·418	0·597	0·505	0·411
65	0·617	0·532	0·446	0·617	0·528	0·438	0·617	0·525	0·431
66	0·638	0·553	0·467	0·638	0·549	0·459	0·638	0·546	0·452
67	0·659	0·574	0·488	0·659	0·570	0·480	0·659	0·567	0·473
68	0·681	0·596	0·510	0·681	0·592	0·502	0·681	0·589	0·495
69	0·703	0·618	0·533	0·703	0·614	0·525	0·703	0·611	0·518
70	0·726	0·641	0·556	0·726	0·637	0·548	0·726	0·634	0·541
71	0·750	0·665	0·580	0·750	0·661	0·572	0·750	0·658	0·565
72	0·775	0·690	0·605	0·775	0·686	0·597	0·775	0·683	0·590
73	0·801	0·716	0·631	0·801	0·712	0·623	0·801	0·709	0·616
74	0·827	0·743	0·658	0·827	0·739	0·650	0·827	0·736	0·643
75	0·854	0·770	0·685	0·854	0·766	0·677	0·854	0·763	0·670
76	0·882	0·798	0·713	0·882	0·794	0·705	0·882	0·791	0·698
77	0·910	0·826	0·741	0·910	0·822	0·733	0·910	0·819	0·726
78	0·939	0·855	0·770	0·939	0·851	0·762	0·939	0·848	0·755
79	0·970	0·886	0·801	0·970	0·882	0·793	0·970	0·879	0·786
80	1·001	0·917	0·833	1·001	0·913	0·825	1·001	0·910	0·818
81	1·033	0·949	0·866	1·033	0·945	0·858	1·033	0·942	0·851
82	1·066	0·982	0·899	1·066	0·978	0·891	1·066	0·975	0·884
83	1·100	1·016	0·933	1·100	1·012	0·925	1·100	1·009	0·918
84	1·135	1·051	0·968	1·135	1·047	0·960	1·135	1·044	0·953
85	1·171	1·087	1·004	1·171	1·083	0·996	1·171	1·080	0·989
86	1·208	1·125	1·042	1·208	1·121	1·034	1·208	1·118	1·027
87	1·246	1·164	1·080	1·246	1·160	1·072	1·246	1·157	1·065
88	1·286	1·203	1·120	1·286	1·199	1·112	1·286	1·196	1·105
89	1·326	1·243	1·161	1·326	1·239	1·153	1·326	1·236	1·146
90	1·367	1·284	1·202	1·367	1·280	1·194	1·367	1·277	1·187

TABLE I. — *Continued.*

t° Wet bulb	26.000			27.000			28.000		
	0	10	20	0	10	20	0	10	20
50	0·373	0·275	0·177	0·373	0·271	0·169	0·373	0·267	0·162
51	0·386	0·288	0·190	0·386	0·284	0·182	0·386	0·280	0·175
52	0·400	0·302	0·204	0·400	0·298	0·196	0·400	0·294	0·189
53	0·414	0·316	0·218	0·414	0·312	0·210	0·414	0·308	0·203
54	0·428	0·330	0·232	0·428	0·326	0·224	0·428	0·322	0·217
55	0·442	0·344	0·246	0·442	0·340	0·238	0·442	0·336	0·231
56	0·457	0·359	0·261	0·457	0·355	0·253	0·457	0·351	0·246
57	0·473	0·375	0·277	0·473	0·371	0·269	0·473	0·367	0·262
58	0·489	0·391	0·293	0·489	0·387	0·285	0·489	0·383	0·278
59	0·506	0·408	0·310	0·506	0·404	0·302	0·506	0·400	0·295
60	0·523	0·426	0·328	0·523	0·422	0·320	0·523	0·418	0·313
61	0·541	0·444	0·346	0·541	0·440	0·338	0·541	0·436	0·331
62	0·559	0·463	0·365	0·559	0·459	0·357	0·559	0·455	0·350
63	0·578	0·482	0·384	0·578	0·478	0·376	0·578	0·474	0·369
64	0·597	0·501	0·403	0·597	0·497	0·395	0·597	0·493	0·388
65	0·617	0·521	0·423	0·617	0·517	0·415	0·617	0·513	0·408
66	0·638	0·542	0·444	0·638	0·538	0·436	0·638	0·534	0·429
67	0·659	0·563	0·465	0·659	0·559	0·457	0·659	0·555	0·450
68	0·681	0·585	0·487	0·681	0·581	0·479	0·681	0·577	0·472
69	0·703	0·607	0·510	0·703	0·603	0·502	0·703	0·599	0·495
70	0·726	0·630	0·533	0·726	0·626	0·525	0·726	0·622	0·518
71	0·750	0·654	0·557	0·750	0·650	0·549	0·750	0·646	0·542
72	0·775	0·679	0·582	0·775	0·675	0·574	0·775	0·671	0·567
73	0·801	0·705	0·608	0·801	0·701	0·600	0·801	0·697	0·593
74	0·827	0·732	0·635	0·827	0·728	0·627	0·827	0·724	0·620
75	0·854	0·759	0·662	0·854	0·755	0·654	0·854	0·751	0·647
76	0·882	0·787	0·690	0·882	0·783	0·682	0·882	0·779	0·675
77	0·910	0·815	0·718	0·910	0·811	0·710	0·910	0·807	0·703
78	0·939	0·844	0·747	0·939	0·840	0·739	0·939	0·836	0·732
79	0·970	0·875	0·778	0·970	0·871	0·770	0·970	0·867	0·763
80	1·001	0·906	0·810	1·001	0·902	0·802	1·001	0·898	0·795
81	1·033	0·938	0·843	1·033	0·934	0·835	1·033	0·930	0·828
82	1·066	0·971	0·876	1·066	0·967	0·868	1·066	0·963	0·861
83	1·100	1·005	0·910	1·100	1·001	0·902	1·100	0·997	0·895
84	1·135	1·040	0·945	1·135	1·036	0·937	1·135	1·032	0·930
85	1·171	1·076	0·981	1·171	1·072	0·973	1·171	1·068	0·966
86	1·208	1·114	1·019	1·208	1·110	1·011	1·208	1·106	1·004
87	1·246	1·153	1·057	1·246	1·149	1·049	1·246	1·145	1·042
88	1·286	1·192	1·097	1·286	1·188	1·089	1·286	1·184	1·082
89	1·326	1·232	1·138	1·326	1·228	1·130	1·326	1·224	1·123
90	1·367	1·273	1·179	1·367	1·269	1·171	1·367	1·265	1·164

TABLE I. — *Continued.*

t°	29.000			30.000			31.000		
Wet Bulb	0	10	20	0	10	20	0	10	20
50	0·373	0·264	0·154	0·373	0·260	0·147	0·373	0·256	0·139
51	0·386	0·277	0·167	0·386	0·273	0·160	0·386	0·269	0·152
52	0·400	0·291	0·181	0·400	0·287	0·174	0·400	0·283	0·166
53	0·414	0·305	0·195	0·414	0·301	0·188	0·414	0·297	0·180
54	0·428	0·319	0·209	0·428	0·315	0·202	0·428	0·311	0·194
55	0·442	0·333	0·223	0·442	0·329	0·216	0·442	0·325	0·208
56	0·457	0·348	0·238	0·457	0·344	0·231	0·457	0·340	0·223
57	0·473	0·364	0·254	0·473	0·360	0·247	0·473	0·356	0·239
58	0·489	0·380	0·270	0·489	0·376	0·263	0·489	0·372	0·255
59	0·506	0·397	0·287	0·506	0·393	0·280	0·506	0·389	0·272
60	0·523	0·415	0·305	0·523	0·411	0·298	0·523	0·407	0·290
61	0·541	0·433	0·323	0·541	0·429	0·316	0·541	0·425	0·308
62	0·559	0·452	0·342	0·559	0·448	0·335	0·559	0·444	0·327
63	0·578	0·471	0·361	0·578	0·467	0·354	0·578	0·463	0·346
64	0·597	0·490	0·380	0·597	0·486	0·373	0·597	0·482	0·365
65	0·617	0·510	0·400	0·617	0·506	0·393	0·617	0·502	0·385
66	0·638	0·531	0·421	0·638	0·527	0·414	0·638	0·523	0·406
67	0·659	0·552	0·442	0·659	0·548	0·435	0·659	0·544	0·427
68	0·681	0·574	0·464	0·681	0·570	0·457	0·681	0·566	0·449
69	0·703	0·596	0·487	0·703	0·592	0·480	0·703	0·588	0·472
70	0·726	0·619	0·510	0·726	0·615	0·503	0·726	0·611	0·495
71	0·750	0·643	0·534	0·750	0·639	0·527	0·750	0·635	0·519
72	0·775	0·668	0·559	0·775	0·664	0·552	0·775	0·660	0·544
73	0·801	0·694	0·585	0·801	0·690	0·578	0·801	0·686	0·570
74	0·827	0·721	0·612	0·827	0·717	0·605	0·827	0·713	0·597
75	0·854	0·748	0·639	0·854	0·744	0·632	0·854	0·740	0·624
76	0·882	0·776	0·667	0·882	0·772	0·660	0·882	0·768	0·652
77	0·910	0·804	0·695	0·910	0·800	0·688	0·910	0·796	0·680
78	0·939	0·833	0·724	0·939	0·829	0·717	0·939	0·825	0·709
79	0·970	0·864	0·755	0·970	0·860	0·748	0·970	0·856	0·740
80	1·001	0·895	0·787	1·001	0·891	0·780	1·001	0·887	0·772
81	1·033	0·927	0·820	1·033	0·923	0·813	1·033	0·919	0·805
82	1·066	0·960	0·853	1·066	0·956	0·846	1·066	0·952	0·838
83	1·100	0·994	0·887	1·100	0·990	0·880	1·100	0·986	0·872
84	1·135	1·029	0·922	1·135	1·025	0·915	1·135	1·021	0·907
85	1·171	1·065	0·958	1·171	1·061	0·951	1·171	1·057	0·943
86	1·208	1·103	0·996	1·208	1·099	0·989	1·208	1·095	0·981
87	1·246	1·142	1·034	1·246	1·138	1·027	1·246	1·134	1·019
88	1·286	1·181	1·074	1·286	1·177	1·067	1·286	1·173	1·059
89	1·326	1·221	1·115	1·326	1·217	1·108	1·326	1·213	1·100
90	1·367	1·262	1·156	1·367	1·259	1·149	1·367	1·254	1·141

TABLE II.

Pressure of Moisture under Barometric Pressure 29·700 inches for depression and Temperature of Wet Bulb.

Temperature of Wet Bulb.	Depression.						
	0°	1°	2°	3°	4°	5°	6°
50	0·373	0·362	0·351	0·339	0·328	0·317	0·305
51	0·386	0·375	0·364	0·352	0·341	0·330	0·308
52	0·400	0·389	0·377	0·366	0·355	0·344	0·332
53	0·414	0·403	0·391	0·380	0·369	0·358	0·346
54	0·428	0·417	0·405	0·394	0·383	0·372	0·360
55	0·442	0·431	0·419	0·408	0·397	0·386	0·374
56	0·457	0·446	0·434	0·423	0·412	0·401	0·389
57	0·473	0·462	0·440	0·439	0·428	0·417	0·405
58	0·489	0·478	0·466	0·455	0·444	0·433	0·421
59	0·506	0·495	0·483	0·472	0·461	0·450	0·438
60	0·523	0·512	0·501	0·490	0·479	0·468	0·456
61	0·541	0·530	0·519	0·508	0·497	0·486	0·474
62	0·559	0·548	0·537	0·526	0·515	0·504	0·493
63	0·578	0·567	0·556	0·545	0·534	0·523	0·512
64	0·597	0·586	0·575	0·564	0·553	0·542	0·531
65	0·617	0·606	0·595	0·584	0·573	0·562	0·552
66	0·638	0·627	0·616	0·605	0·594	0·583	0·572
67	0·659	0·648	0·637	0·626	0·615	0·604	0·593
68	0·681	0·670	0·659	0·648	0·637	0·626	0·615
69	0·703	0·692	0·681	0·670	0·659	0·648	0·637
70	0·726	0·715	0·704	0·693	0·682	0·671	0·660
71	0·750	0·739	0·728	0·717	0·706	0·695	0·684
72	0·775	0·764	0·753	0·742	0·731	0·720	0·709
73	0·801	0·790	0·779	0·768	0·757	0·746	0·735
74	0·827	0·816	0·805	0·794	0·783	0·772	0·761
75	0·854	0·843	0·832	0·821	0·810	0·799	0·788
76	0·882	0·871	0·860	0·849	0·838	0·827	0·816
77	0·910	0·899	0·888	0·877	0·866	0·855	0·844
78	0·939	0·928	0·917	0·906	0·895	0·884	0·872
79	0·970	0·959	0·948	0·937	0·926	0·915	0·904
80	1·001	0·990	0·979	0·968	0·957	0·946	0·935
81	1·033	1·022	1·011	1·000	0·989	0·978	0·967
82	1·066	1·055	1·044	1·033	1·022	1·011	1·000
83	1·100	1·089	1·078	1·067	1·056	1·045	1·034
84	1·135	1·125	1·114	1·103	1·092	1·081	1·069
85	1·171	1·160	1·149	1·138	1·127	1·116	1·106
86	1·208	1·197	1·186	1·175	1·164	1·153	1·143
87	1·246	1·235	1·224	1·214	1·203	1·192	1·182
88	1·286	1·276	1·265	1·254	1·243	1·232	1·221
89	1·326	1·316	1·305	1·294	1·283	1·272	1·261
90	1·367	1·357	1·346	1·335	1·324	1·313	1·303

TABLE II.—*Continued.*

Temperature of Wet Bulb.	Depression.						
	7°	8°	9°	10°	11°	12°	13°
50	0·294	0·283	0·272	0·261	0·250	0·239	0·228
51	0.307	0·296	0·285	0.274	0·263	0·252	0·241
52	0·321	0·310	0·299	0·288	0·277	0·266	0·255
53	0·335	0·324	0·313	0·302	0·291	0·280	0·269
54	0·349	0·338	0·327	0·316	0.305	0·294	0·283
55	0·363	0·352	0·341	0·330	0·319	0·308	0·297
56	0·378	0·367	0·356	0·345	0·334	0·323	0·312
57	0·394	0·383	0·372	0·361	0·350	0·339	0·328
58	0·410	0·399	0·388	0·377	0·366	0·355	0·344
59	0·427	0·416	0·405	0·394	0·383	0·372	0·361
60	0·445	0·434	0·423	0·412	0·401	0·390	0·379
61	0·463	0·452	0·441	0·430	0·419	0·408	0·397
62	0·482	0·471	0·460	0·449	0·438	0·427	0·416
63	0·501	0·490	0·479	0·468	0·457	0·446	0·435
64	0·520	0·509	0·498	0·487	0·476	0·465	0·454
65	0·540	0·529	0·518	0·507	0.496	0·485	0·474
66	0·561	0·550	0·539	0·528	0·517	0·506	0·495
67	0·582	0·571	0·560	0·549	0·538	0·527	0·516
68	0·604	0·593	0·582	0·571	0·560	0·549	0·538
69	0·626	0·615	0·604	0·593	0·582	0·571	0·560
70	0·649	0·638	0·627	0·616	0·604	0·593	0·582
71	0·673	0·662	0·651	0·640	0·628	0·617	0·606
72	0·698	0·687	0·676	0·665	0·754	0·643	0·632
73	0·724	0·713	0·702	0·690	0·679	0·668	0·657
74	0·750	0·739	0·728	0·718	0·706	0·695	0·684
75	0·777	0·766	0·755	0·744	0·733	0·722	0·711
76	0·805	0·794	0.783	0·772	0·761	0·750	0·739
77	0·833	0·822	0·811	0·800	0.789	0.778	0·767
78	0·862	0·851	0·840	0·829	0·818	0·807	0·796
79	0·893	0·882	0·871	0·860	0.849	0·838	0·827
80	0·924	0·913	0·902	0·892	0·881	0·870	0·859
81	0·956	0·945	0·934	0·924	0·913	0·902	0·891
82	0·989	0·978	0·967	0·957	0·946	0·935	0·924
83	1·023	1·012	1·001	0·991	0·980	0·969	0·958
84	1·058	1·047	1·036	1·026	1·015	1·004	0·993
85	1·094	1·083	1·072	1·062	1·051	1·040	1·029
86	1·132	1·121	1·110	1·100	1·089	1·078	1·067
87	1·171	1·160	1·149	1·139	1·128	1·117	1.106
88	1·210	1·199	1·188	1·178	1·167	1·156	1·145
89	1·250	1·239	1·228	1·218	1·207	1·196	1·185
90	1·292	1·281	1·270	1·259	1·249	1·238	1·227

TABLE II.—*Continued.*

Temperature of Wet Bulb.	Depression.						
	14°	15°	16°	17°	18°	19°	20°
50	0·217	0·205	0·194	0·183	0·171	0·160	0·149
51	0·230	0·218	0·207	0·196	0·184	0·173	0·162
52	0·244	0·232	0·221	0·210	0·198	0·187	0·176
53	0·258	0·246	0·235	0·224	0·212	0·201	0·190
54	0·272	0·260	0·249	0·238	0·226	0·215	0·204
55	0·286	0·274	0·263	0·252	0·240	0·229	0·218
56	0·301	0·289	0·278	0·267	0·255	0·244	0·233
57	0·317	0·305	0·294	0·283	0·271	0·260	0·249
58	0·333	0·321	0·310	0·299	0·287	0·276	0·265
59	0·350	0·338	0·327	0·316	0·304	0·293	0·282
60	0·368	0·356	0·345	0·334	0·322	0·311	0·300
61	0·386	0·374	0·363	0·352	0·340	0·329	0·318
62	0·405	0·393	0·382	0·371	0·359	0·348	0·337
63	0·424	0·412	0·401	0·390	0·378	0·367	0·356
64	0·443	0·431	0·420	0·409	0·397	0·386	0·375
65	0·463	0·451	0·440	0·429	0·417	0·406	0·395
66	0·484	0·472	0·461	0·450	0·438	0·427	0·416
67	0·505	0·493	0·482	0·471	0·459	0·448	0·437
68	0·527	0·515	0·504	0·493	0·481	0·470	0·459
69	0·549	0·537	0·526	0·515	0·504	0·493	0·482
70	0·571	0·560	0·549	0·538	0·527	0·516	0·505
71	0·595	0·584	0·573	0·562	0·551	0·540	0·529
72	0·621	0·609	0·598	0·587	0·576	0·565	0·554
73	0·646	0·635	0·624	0·613	0·602	0·591	0·580
74	0·673	0·662	0·651	0·640	0·629	0·618	0·607
75	0·700	0·689	0·678	0·667	0·656	0·645	0·634
76	0·728	0·717	0·706	0·695	0·684	0·673	0·662
77	0·756	0·745	0·734	0·723	0·712	0·701	0·690
78	0·785	0·774	0·763	0·752	0·741	0·730	0·719
79	0·816	0·805	0·794	0·783	0·772	0·761	0·750
80	0·848	0·837	0·826	0·815	0·804	0·793	0·782
81	0·880	0·869	0·859	0·848	0·837	0·826	0·815
82	0·913	0·902	0·892	0·881	0·870	0·859	0·848
83	0·947	0·936	0·926	0·915	0·904	0·893	0·882
84	0·982	0·971	0·961	0·950	0·939	0·928	0·917
85	1·018	1·007	0·997	0·986	0·975	0·964	0·953
86	1·056	1·045	1·035	1·024	1·013	1·002	0·991
87	1·095	1·084	1·074	1·063	1·052	1·041	1·030
88	1·134	1·123	1·113	1·102	1·091	1·080	1·069
89	1·175	1·164	1·153	1·142	1·132	1·121	1·110
90	1·216	1·205	1·195	1·184	1·173	1·162	1·151

TABLE III.

Humidity of the air for Barometric pressure 29·70 arguments Temperature and Depression Wet Bulb.

Temperature of Wet Bulb.	Depression.						
	0°	1°	2°	3°	4°	5°	6°
50	1·000	0·970	0·940	0·910	0·880	0·850	0·820
51	1·000	0·971	0·942	0·913	0·884	0·855	0·826
52	1·000	0·972	0·944	0·916	0·888	0·860	0·832
53	1·000	0·973	0·946	0·919	0·892	0·865	0·838
54	1·000	0·974	0·948	0·922	0·896	0·870	0·844
55	1·000	0·975	0·950	0·925	0·899	0·873	0·848
56	1·000	0·976	0·951	0·927	0·902	0·877	0·852
57	1·000	0·977	0·953	0·929	0·905	0·881	0·857
58	1·000	0·977	0·954	0·931	0·908	0·885	0·862
59	1·000	0·978	0·956	0·934	0·911	0·889	0·867
60	1·000	0·979	0·957	0·936	0·914	0·893	0·871
61	1·000	0·980	0·959	0·939	0·917	0·897	0·876
62	1·000	0·981	0·961	0·941	0·921	0·901	0·881
63	1·000	0·981	0·962	0·943	0·924	0·905	0·885
64	1·000	0·982	0·964	0·945	0·927	0·908	0·889
65	1·000	0·982	0·965	0·947	0·930	0·911	0·893
66	1·000	0·983	0·966	0·949	0·932	0·914	0·897
67	1·000	0·983	0·967	0·951	0·934	0·917	0·900
68	1·000	0·984	0·968	0·952	0·936	0·920	0·903
69	1·000	0·984	0·969	0·954	0·938	0·922	0·905
70	1·000	0·985	0·970	0·956	0·940	0·924	0·908
71	1·000	0·985	0·971	0·957	0·942	0·927	0·911
72	1·005	0·986	0·972	0·958	0·944	0·929	0·914
73	1·000	0·986	0·973	0·959	0·946	0·931	0·917
74	1·000	0·987	0·974	0·960	0·947	0·933	0·919
75	1·000	0·987	0·974	0·961	0·948	0·935	0·921
76	1·000	0·987	0·975	0·963	0·950	0·937	0·924
77	1·000	0·988	0·976	0·964	0·952	0·939	0·927
78	1·000	0·988	0·977	0·965	0·954	0·941	0·929
79	1·000	0·988	0·978	0·966	0·955	0·943	0·931
80	1·000	0·989	0·978	0 967	0·956	0·945	0·934
81	1·000	0·989	0·979	0·968	0·958	0·947	0·936
82	1·000	0·989	0·980	0·969	0·959	0·949	0·939
83	1·000	0·990	0·980	0·970	0·960	0·950	0·941
84	1·000	0·990	0·981	0·971	0·962	0·952	0·942
85	1·000	0·990	0·981	0·972	0·963	0·953	0·944
86	1·000	0·991	0·982	0·973	0·964	0·955	0·946
87	1·000	0·991	0·983	0·974	0·965	0·956	0·947
88	1·000	0·991	0·983	0·975	0·966	0·958	0·949
89	1·000	0·991	0·984	0·976	0·967	0·959	0·951
90	1·000	0·992	0·984	0·976	0·968	0·960	0·952

TABLE III.—*Continued.*

Temperature of Wet Bulb.	Depression.						
	7°	8°	9°	10°	11°	12°	13°
50	0·790	0·760	0·730	0·700	0·670	0·640	0·610
51	0·797	0·768	0·739	0·710	0·681	0·652	0·623
52	0·804	0·776	0·748	0·720	0·692	0·664	0·636
53	0·811	0·784	0·757	0·729	0·702	0·675	0·648
54	0·817	0·791	0·765	0·738	0·712	0·686	0·660
55	0·823	0·798	0·772	0·746	0·721	0·696	0·671
56	0·828	0·804	0·779	0·755	0·730	0·705	0·680
57	0·832	0·810	0·787	0·763	0·739	0·715	0·691
58	0·838	0·817	0·794	0·771	0·748	0·725	0·702
59	0·844	0·823	0·801	0·778	0·756	0·734	0·712
60	0·850	0·829	0·808	0·786	0·764	0·742	0·721
61	0·855	0·835	0·815	0·794	0.772	0·751	0·731
62	0·861	0·841	0·821	0·801	0·780	0·760	0·741
63	0·866	0·847	0·828	0·809	0·789	0·769	0·750
64	0·870	0·852	0·834	0.816	0·797	0·778	0·759
65	0·874	0·857	0·839	0·822	0·804	0·786	0·767
66	0·879	0·862	0·844	0·827	0·810	0·793	0·775
67	0·883	0·866	0·849	0·833	0·816	0·799	0·782
68	0·886	0·870	0·854	0·838	0·822	0·805	0.789
69	0·889	0·874	0·859	0·843	0·827	0·811	0·795
70	0·892	0·877	0·863	0·848	0·833	0·817	0·802
71	0·896	0·881	0·867	0·853	0·838	0.823	0·809
72	0·899	0·885	0·872	0·858	0·844	0·829	0·815
73	0·903	0·889	0·876	0·863	0·849	0·835	0·821
74	0·906	0·892	0·880	0·867	0·854	0·840	0·827
75	0·909	0·896	0·884	0·871	0·858	0·845	0·832
76	0·912	0·900	0·888	0·875	0·863	0·850	0·837
77	0·915	0·903	0·891	0·879	0·867	0·854	0·842
78	0·917	0·906	0·895	0·883	0.872	0·859	0·847
79	0·919	0·909	0·898	0·887	0·876	0·864	0·853
80	0·922	0·912	0·902	0·891	0·880	0·869	0·858
81	0·925	0·915	0·905	0·895	0·884	0·873	0·863
82	0·929	0·918	0·908	0·898	0·888	0·877	0·867
83	0·931	0·921	0·911	0·901	0·891	0·881	0·871
84	0·932	0·924	0·914	0·904	0·895	0·885	0·875
85	0·935	0·926	0·917	0·907	0·898	0·889	0·879
86	0·937	0·938	0·919	0·910	0·901	0·892	0·883
87	0·939	0·930	0·922	0·913	0·905	0·897	0·888
88	0·941	0·932	0·924	0·916	0·908	0·900	0·892
89	0·943	0·935	0·927	0·919	0·910	0·902	0.894
90	0·944	0·936	0·928	0·921	0·914	0·906	0·898

TABLE III.—*Continued.*

Temperature of Wet Bulb. °	Depression.						
	14°	15°	16°	17°	18°	19°	20°
50	0·580	0·550	0·520	0·490	0·460	0·430	0·400
51	0·594	0·565	0·536	0·507	0·478	0·449	0·420
52	0·608	0·580	0·552	0·524	0·496	0·468	0·440
53	0·620	0·594	0·567	0·540	0·513	0·486	0·459
54	0·632	0·607	0·582	0·556	0·530	0·504	0·477
55	0·644	0·620	0·595	0·570	0·545	0·519	0·493
56	0·656	0·632	0·608	0·584	0·560	0·535	0·510
57	0·668	0·644	0·621	0·597	0·574	0·550	0·526
58	0·679	0·656	0·634	0·611	0·588	0·565	0·542
59	0·690	0·668	0·646	0·624	0·602	0·580	0·557
60	0·700	0·680	0·659	0·637	0·616	0·595	0·573
61	0·711	0·691	0·671	0·650	0·630	0·609	0·588
62	0·721	0·702	0·683	0·663	0·643	0·623	0·602
63	0·731	0·712	0·693	0·674	0·655	0·636	0·616
64	0·740	0·721	0·703	0·684	0·666	0·647	0·628
65	0·749	0·730	0·712	0·694	0·676	0·658	0·640
66	0·757	0·739	0·722	0·704	0·687	0·669	0·652
67	0·765	0·748	0·731	0·714	0·697	0·680	0·663
68	0·773	0·756	0·740	0·723	0·707	0·690	0·674
69	0·780	0·764	0·749	0·733	0·717	0·701	0·685
70	0·787	0·772	0·757	0·742	0·727	0·711	0·696
71	0·794	0·779	0·765	0·751	0·736	0·721	0·706
72	0·801	0·786	0·772	0·758	0·744	0·730	0·715
73	0·807	0·793	0·780	0·766	0·752	0·738	0·725
74	0·813	0·800	0·787	0·774	0·761	0·747	0·734
75	0·819	0·806	0·794	0·781	0·768	0·755	0·742
76	0·825	0·812	0·800	0·788	0·775	0·763	0·750
77	0·830	0·818	0·806	0·794	0·782	0·770	0·758
78	0·836	0·824	0·812	0·800	0·789	0·777	0·766
79	0·842	0·830	0·818	0·807	0·796	0·784	0·774
80	0·847	0·836	0·825	0·814	0·803	0·792	0·782
81	0·852	0·841	0·831	0·820	0·809	0·799	0·789
82	0·857	0·846	0·836	0·826	0·815	0·805	0·795
83	0·861	0·851	0·842	0·832	0·822	0·812	0·802
84	0·866	0·856	0·847	0·838	0·828	0·818	0·808
85	0·870	0·861	0·852	0·843	0·833	0·824	0·814
86	0·874	0·865	0·856	0·847	0·838	0·829	0·820
87	0·879	0·870	0·861	0·852	0·843	0·835	0·826
88	0·883	0·874	0·865	0·857	0·849	0·841	0·832
89	0·886	0·878	0·870	0·862	0·853	0·845	0·837
90	0·890	0·882	0·874	0·866	0·858	0·850	0·842

ART. VIII.—*Literary and Scientific Notices.*

1. *Magnificent Sculptures found on opening the Mound of Nimrod, near Nineveh.*

Letters from Baghdad mention that Mr. Layard, a gentleman sent down by Sir Stratford Canning, has cut into the great *Mound of Nimrod*, on this side Nineveh, and discovered most magnificent sculptures, statues, and inscriptions in the cuneiform character of the most remote Babylonian era. He has also found copper swords, and the copper-tools with which the works were executed. The Mound is close to the Tigris, and transport will consequently be easy. In the mean time petty jealousy, on the part of the Pasha of Mosul, backed by the intrigues of good natured Gallic friends, has put a stop to the work of excavation, till a *Firman* has been obtained from the Porte.

2. *Maratha and Kanarese languages.*

These two languages are used by the natives inhabiting the countries from the upper part of the Nermada, (Nerbudda), on the North, to the source of the Kavary river, on the South; or from the 11th to the 21st degrees of north latitude; being bounded west-ward by the ocean, and east-ward by a line drawn from the upper parts of the Nerbudda, through Nagpoor, and the sources of the Warda river in this province, to Nandere, Beder, Maktal, Raichore, Gooty, Pennakonda, Panganoor, Venkatagherry, and sources of the Kavary. The region to which the Maratha language is particularly confined, is bounded, on the west and south, by a line drawn from Sedasheoghar, on the Malabar coast, to Koorundwar, Hassoor, Bahmenhaal, Jeroor, Jeergeeyal, Jutt, Mangalweera and sources of the Maun river, through Sholapoor, and thence, east-ward to Beder: at which place and its neighbourhood, the Telagu, Maratha, and Kanarese dialects seem to unite. The boundary of the Kanarese language on the W. and N. is the line now described from Sedasheoghar, and marks the extent of the Karnataka province on this side, as distinguished from that of Maharashtra, both of which however were anciently included in one kingdom; and of which Kalian, near Beder, was the capital, the country at this time being known by the name of the southern *Kuntala Desha*. It is so named in an inscription of the twelth century of our era A. D. 1173, (As: Res. ix. page 431). The Shapti Sambheda, quoted by Ward, on the Geography of the Hindus, describes Maharashtra, or Karnata, as extending from Ujain and the

holy place Marjara to Kolapoor, thus excluding Karnata proper; but the fact of this region being indiscriminately named, by a Sanskrit writer, Maharashtra or Karnata, shows that both were at some period included in one kingdom as just mentioned; and facts are not wanting to prove an interesting circumstance in the history of the country that both were the scenes of Bauddha missionary labours, during the reign of the great Emperor Asoka, or B. C. 247.

3. *Duplicate of the Rosetta Stone Inscription found at Philæ.*

The learned Prussian, Monsieur Lepsius, in a letter to M. Letronne, communicated to the Academy of Inscriptions and *Belles-Lettres* of Paris, states that he has discovered a duplicate of the Rosetta-Inscription at Philæ, along with many other inscriptions collected in Egypt and Ethiopia.—The following is an extract from his journal—"At Philæ I have discovered a copy of the decree of the Rosetta-Inscription: the hieroglyphic part of which has been already observed by Salt, as I have since learned; the *demotic text*, however, as far as I know, has not been mentioned by any one. Champollion takes no notice of it in his letters, and paid no attention to it as would appear, though it be an inscription of very great importance, since it repeats the decree word for word, and even preserves the same number of lines, so that the end of the decree, relative to the *triple system of writing*, is here found; although the Greek text has not been added, unless it may have been put below in letters of red, which are now effaced. A considerable part of the lower corner, wanting in the Rosetta-Stone, may be restored from our inscription, which will be of great utility to Egyptian philology; and the *demotic part* is also well preserved throughout, unless where the letters are taken away by the hieroglyphics, which Ptolemy Dionysos* placed above.† Along side of this decree there is another, also bi-lingual, and

* This is king Ptolemy XII, who reigned along with his sister the celebrated Cleopatra, between the years 52 to 48, before the Christian era. It is an error of the Chronologists calling him *Dionysos*.

† This fact of hieroglyphics cut, in the time of Ptolemy XII, above a demotic inscription of the time of *Epiphanes*, is most curious and hitherto unique; but it will not surprise those who know the Egyptian *bas reliefs*, sculptured above the Greek inscriptions, of the time of Ptolemy Dionysos, on the great *pylon* of Philæ.

with the same termination* relative to the three systems of writing, but with the indication of some other place where this decree ought to find its place in the temples. I have found in this for the first time, the name of the City of Alexandria; and will copy the inscriptions after the impressions which I have taken; subsequent to which I shall be able to say more.

You are perhaps apprized that I have found, at the base of the obelisk, which Mr. Bankes left at Philæ, the traces of a fourth Greek inscription,† in large painted letters of five or six lines at least. Unfortunately I can only affirm the existence of such an inscription; but it will be impossible to decipher it, as I convinced myself anew during our late stay at Philæ.

On the subject of Ethiopic Inscriptions M. Lepsius continues;—"In short I have collected a very great number of *demotic inscriptions*, and what is of more importance several *Ethiopic inscriptions*. I believe I am authorized in calling them so, after my conviction that they contain the language of the inhabitants of Meroe at the period of its greatness. I have found these inscriptions in the Pyramids of Meroe, relative even to the representations of their Chambers: they are found frequently along side of *hieroglyphic* inscriptions, sufficiently rude. The people of the ancient *Meroe*, (whose monuments are certainly among the most modern of the antiquities found in the upper valley of the Nile,) descended even to the frontiers of Egypt: and I have discovered an *Ethiopian temple*, erected by the same kings and queens who built the temples of *Naga* and the pyramids of *Meroe*, in the country of the Cataracts, at *Amara*, and some specimens of their inscriptions even at Philæ. I believe also, I can prove, and have given the general reasons

* This refers to the last phrase of the Rosetta Inscription, wherein is mentioned that the decree should be engraved in *three* characters *sacred*, *common*, and *Greek*.

† I had no knowledge of this fact, but it is nothing more than very natural. There are three Inscriptions on the base of the Obelisk. 1st The petition of the priests of Philæ; 2nd The royal rescript which granted their request; 3d. The letter of advice in the proclamation. There is then wanting the reply of the priests, both to the king and to the proclamation, containing the expression of their gratitude. This is without doubt the subject of the fourth Inscription found at the base of the Obelisk, which is unfortunately in an irrecoverable state.

for this opinion in a memoir sent to the Academy of Sciences at Berlin, that the Ethiopic language of the ancient *Meroe* exists yet, and is that spoken by the widely spread population of Bicharîba, (Bisharin,) which occupies all the countries on the east, from the 23° to the 13° of N. L. as well as the fertile provinces of *Taka* which had latterly revolted from the Turks, during the time we were above. I have studied as much as I could, during the ten months I have spent in Ethiopia, the principal languages of the country; chiefly *Nubian*, in the valley of the Nile, from Assuan to the frontier of *Dongola*; the *Kongara* of the people of *Darfour*; and the *Beja* of the Bicharîba. I have discovered that this latter language is a most interesting branch of the *Caucasian* family, though it be very different from the Egyptian language. I am perfectly convinced that the Ethiopians, in the time of the Ancient Pharoahs, had nothing almost in common, as a people, with the Egyptians, and that the ancient traditions relative to high Ethiopian civilization, are explained now in a way very different, but quite satisfactorily, by the important part which Egyptian civilization played in Ethiopia 2000 B. C. *L. Institut Nos.* 109. *sect*:11.

4. *M. Schmidt's Tibetan Grammar and Dictionary.*

At length M. Schmidt has finished the publication, at St. Petersburg, of his Dictionary of the Tibetan language, and the edition of the Tibetan text of the *Dgangloun*, with the corresponding German translation. These two works form, along with the Tibetan Grammar published in 1841, all that is necessary for the study of this language. Thus, by six works which have followed each other at short intervals, has this laborious Academician first opened, for the investigation of the learned, two literary languages of Central Asia, which before him, were deemed almost inaccessible. *L. Institut Nos.* 111. *Sec* 11. *March* 1845.

5. *M. Botta's discoveries at Nineveh. — Continued.*

In anticipation of the report from the Academy of Inscriptions, which will be given in our next number, &c. we here present an extract from two letters, on the discoveries of M. Botta at Nineveh, translated from a foreign collection wherein we have found them.

"There has been again published an account of 15 chambers, some of which are above 400 feet long, being evidently part of a magnificent

palace. Their walls are entirely covered with inscriptions and sculptures. These last are almost without exception historical and illustrative of events of the highest interest, such as sieges, naval operations, triumphs, particular combats, &c. The inscriptions are in cuneiform characters, and of such an extent that if all those of the same kind, previously known, were joined end ways, they would not equal the space which the new inscriptions occupy. The character employed exactly resembles that of the inscribed columns at Persepolis, Hamadan (Ecbatana), &c. and the primitive inscriptions at Van. Each door has two rows of sculptures, placed one above the other; and the inscriptions, containing generally about 20 lines, are engraved between. We meet with them however frequently upon the vestments of figures, upon the towers, and other objects, which one observes in the *bas-reliefs*. We cannot doubt that they are dedicated to the events represented by these figures, and the names of the principal actors which they present, carry the conviction that they contain a portion of the historical archives of the kingdom. Independently of the variety of the subjects described by the sculpture, the spirit and the beauty of their execution offer the widest field for admiration and for conjecture. For those who have been in the habit of regarding the Greeks as the veritable masters in imitative arts, the sculptures of Nineveh furnish a new subject for research and for reflection. Though we cannot assign to these remains an origin much anterior to the most ancient periods of art amongst the Greeks, they appear to me quite original, both in design and execution. Though probably cotemporary with several of the most ancient sculptures in Egypt, they are incomparably superior to the stiff and ill proportioned figures of the monuments of the Pharoahs. This shows some knowledge of anatomy and human physiognomy, a remarkable intelligence of character, and surprising harmony in the *contour* and general execution.

At this period, the rude style had already given place to civilized art. The ornaments, dresses, implements of war, are finished with precision and extraordinary minuteness, without departing from a harmonious whole. The extreme beauty and elegance of the various objects, introduced amongst the groups, must command admiration.—The form of the vases, the drinking cups, the sword handles ornamented with lions, the shields decorated with animals and flowers, the arm chairs, the

tables and other utensils for domestic use, the ornaments for the head, the bracelets and earrings, are all finished with consummate taste, and rival the productions of the most flourishing periods of art amongst the Greeks. In spite of this, there are some faults in the general execution, such as frequent errors in the relative proportions of the figures; we see also evidently that the same hand has not presided over the entire work.

The nature of the sculptures and also of the inscriptions are alone sufficient to prove that they existed at a period prior to the conquest of Persia by the Macedonians; the difficulty is to know to which of the three great dynasties, which successively ruled the empire of the Assyrians, they ought to be ascribed, viz: the *first race* of Kings, of which Sardanapalus was the last B. C. 820; the *second race*, which became extinct at the destruction of Nineveh by Cyaxares (608); or the *Medo-Persian* conquerors, who governed the east till the time of their defeat by Alexander. The first supposition may be abandoned as quite improbable.—Several important facts concur to make us believe that the second Assyrian era was the date of the construction of the edifice: the first of these is a very remarkable passage in the xxiii Chapter of Ezekiel, 14 and 15 verses: "she saw men pourtrayed upon the wall, the images of the Chaldeans pourtrayed with vermillion, girded with girdles upon their loins, exceeding in dyed attire upon their heads, all of them princes to look to, after the manner of the Babylonians of Chaldea, the land of their nativity." It is impossible for any one having a knowledge of M. Botta's sculptures not to be struck by the exact description of them which this passage contains. It is evident that the entire surface of the marble has been painted with a sort of red ochre, except in certain places where the ornaments have been re-painted with more brilliant colours. The richly decorated girdles and head ornaments of the principal personages, whether these ornaments be tiaras, mitres, or simple bands, binding the hair round the temples and floating behind the back, are of a remarkable form. The agreement of these figures with the text in Ezekiel is such that we are forced to conclude that the prophet had these or similar sculptures in view. It must be remembered that Ezekiel prophesied by the river *Chebar*, the Chaboras or Khabour, in the immediate neighbourhood of Nineveh, and that, as we gather from this chapter, at a period previous to the fall of this city.

The following facts prove yet more that the monument of right belongs to the second Assyrian dynasty, viz; the absence of sacred symbols and emblems belonging to the *Magian religion*, the nature of the divinities and idols represented, the historical evidence which assigns it to the period of the destruction of Nineveh, the vestments of the figures, the character employed in the inscriptions, and the style of Architecture.

Between the fall of the first Assyrian dynasty and the final ruin of Nineveh, by the united armies of Cyaxares and Nebuchadnezzar, the Assyrian empire was governed by a race of Kings who extended their conquest over the whole of Western Asia, and even as far as the frontiers of Africa. Under the reigns of Senharib or Sennacherib, and Esarhaddon, the Assyrian empire comprehended not only the countries, which circumscribed the frontiers of Assyria, in the widest sense of the term, namely, Babylonia, Susa, and part of Media and Mesopotamia, but likewise Cilicia, Phœnicia, Syria, Egypt, Ethiopia, and part of Arabia. The monarchs of this dynasty are frequently mentioned in history and the Jewish prophecies. Their names, indicating from their construction an Indo-Germanic origin, entirely differ from those of the Kings belonging to the first Assyrian dynasty, which have been preserved by the profane historians, and are evidently of Semitic origin. This fact would tend to prove that this second dynasty came from Media. But as the Magian religion appears, even at this time, to have prevailed in this country, it would be reasonable to conclude that if the new dynasty was one of conquerors, these conquerors would have imposed their religion on Assyria. The same remark is applicable respecting the Median language, but we we have proofs most satisfactory that the Assyrians retained their language along with the ancient characters of their works. Thus in Kings, ch.xix v: 36 and 37, it is said that Sennacherib was slain by his sons at the time he was worshipping in the temple (or house) of *Nisroch*, his god, (Isaiah ch: xxxvii v: 38); also in Kings ch: xviii we read that the commanders of the same monarch were required to speak in Syrian and not in Hebrew. The Magi worshipped not in temples, and moreover, the name of the Assyrian divinity is an unexceptionable proof of its Semitic origin. *Nisr*, in all the Aramæan (Syrian) dialects, signifies an eagle; and Gesenius was of opinion that *Nisroch* signifies the great eagle. Now the divinity which is most frequently represented in the sculptures discovered by M. Botta, joins to the

human form the head and wings of an eagle. The presence of this figure at Nineveh, coming to support the text of the book of Kings, can scarcely be considered as a merely accidental coincidence. As one has found but one Semitic divinity, it may nevertheless be conjectured that there exist other emblems of the same worship. We have accordingly *Baal* or the Assyrian Hercules.—The figure seems to represent this divinity. The characteristic feature of all the religious systems of Western Asia consists of gigantic proportions and imposing forms. In one of his hands he is strangling with apparent ease a lion, whose contorted features, and extended claws grasping the garments of the god, attest the superhuman force which presides at his destruction. In the other hand is a serpent with a monstrous head, or armour of this form. These two attributes denote at once the Hercules of the Semitic race, whence the Greeks derived the traditions which they ultimately applied to their own proper Hero. In the low relief representing the manœuvres of a fleet at sea, one notices a marine divinity, whose superior half represents a man, and inferior extremity the tail of a fish, probably *a triton*, of which the worship extended widely in the east. These divinities, so completely opposed to the spirit of the Magian religion, prove then that the doctrines of *Zoroaster* had not yet been introduced among the Assyrian people.

The dress of the Kings altogether resembles that of the Medes. A mitre, or conical raised cap, painted with gaudy colours, covers their head. Their hair and beards are so carefully curled, and so minutely and neatly arranged, that they look more artificial than natural. Some of the long robes, richly decorated with borders and fringes, descend to the ancle. Other persons are dressed like, and represent apparently the courtiers having authority inferior to that of the Monarch. The warriors wear helmets and are clad in armour. Though this royal costume may be Median, it must not be forgotten that it also resembles very nearly that of the Babylonians. These allow their hair to grow, says Herodotus, when he describes this people, and have a mitre on their heads. They carry in their hands a *baton*, on the head of which is carved an apple, a rose, a lily, an eagle, or some other figure. They generally wear a linen tunick, which descends to the ancle, above which is another of the same material; and over the whole is thrown a small white cloak. But the Babylonians might have adopted before the time

of Herodotus the costume of their conquerors the Medo-Persians. Thus, though the similarity of the dresses found in the sculptures of Nineveh and Persepolis, would lead to the conjecture that both kind of monuments ascend to a Median origin, this opinion is not altogether of absolute certainty. The exact description of Ezekiel, contained in the passage which we have quoted, would appear to force on us the admission of a South-Assyrian origin. *L. Institut No.* 112 *April* 1845.

ART. IX.—*Extracts from the Proceedings of the Society.*

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held, in the Library Rooms, on Thursday, the 9th January 1845.

The minutes of last meeting were read and approved of.

Assistant Surgeon J. Peet, proposed at last meeting, was ballotted for and duly elected; and Dunjeebhoy Framjee Esq., proposed as a subscriber to the Library by Dr. Buist, and seconded by the Secretary, was admitted agreeably to the regulations.

The Marquis de Ferriere LeVayer, Secretary to the French Embassy in China, proposed as an Honorary Member by Colonel Jervis, Vice President, seconded by Dr. Burnes, K. H, Vice President, and the Secretary, was duly elected, in accordance with Art. IX of the Regulations.

Dr. D. Grierson, of the Bombay Medical service, proposed as a Member of the Society by Dr. Burnes, K. H. seconded by the Secretary, to be ballotted for at next meeting.

The proposition for reducing a portion of the sum now expended on account of newspapers, of which due notice was given, having been submitted to the meeting, R. W. Crawford Esq., seconded by Dr. Buist, proposed that the finance committee, in reporting on the best means of reducing the current expenses of the Society, be requested to name the sum which ought, in their opinion, to be reduced from the usual charges for newspapers and periodicals; and that this sum having been fixed on, all periodicals and newspapers be held discontinued, so as to admit of Members of the Society naming those to be in future taken, within the limits of the prescribed sum. Notice of this to be given before next meeting.

The proposition also, of which previous notice was given, to partly

relieve the Society, in the present state of its finances, from the expenses of publishing the quarterly journal, by charging Members of the Society Rs. 2, for each number, and subscribers, not Members, at the rate of Rs. 2½, having been brought before the meeting, it was thereon resolved that a subscription list be circulated to all Members of the Society, requesting their support of, and subscription to, the quarterly journal which promises to be of general interest in the *History, Philology, Palæography, Mythology,* and *Antiquities* of Western India, and the neighbouring countries; but which, without such support, must otherwise be discontinued: a subscription was accordingly opened, to which the Members at the Meeting appended their names.

The following donations were laid on the table:

To the Library.

Copy of Mr. Frere's translation of the Frogs of Aristophanes, and of Theognis, accompanied by a note from his nephew W. E. Frere Esq., of the Bombay Civil Service.

Second.—2 setts of Chinese Books, by J. Turner Esq., Assistant Surgeon, presented through the Vice President, Dr. Burnes, K. H.

To the Museum.

Various specimens of petrified wood, from the petrified forest near Cairo, by Wm. Pigou, Esq. Assistant Surgeon, through Dr. Burnes.—A shark's jaw, and specimens of black coral, by Captain J. A. Young, through Professor Orlebar.

Land shells from Ceylon, by Dr. Leith, and *larvæ* which destroy the mangoe trees, by the Rev. G. Pigott, through Professor Orlebar.

2 Curious Chinese mariner's compasses, by John Turner, Esq. Assistant Surgeon, through Dr. Burnes.

The Secretary read a letter from Captain Postans, accompanied by an English translation of a Sanskrit inscription, relative to the Temple of Somnath, but of which the Society has already a translation by W. Wathen, Esq. which has been printed in the October number of the Society's Journal, now about to issue from the Press.

The Secretary also read a paper on the origin of the *Himaiyaric* and *Ethiopic* alphabets, arranged by him, and compared with the Hebrew, Phœnician, Samaritan, Mendœan, and Arabic.

Resolved.—That the thanks of the Society be given for the donations and paper presented.

The meeting then adjourned to Thursday, the 13th of February next.

At a monthly Meeting of the Bombay Branch Royal Asiatic Society, held in the Library rooms, on Thursday the 13th February, 1845.

The minutes of last meeting were read and approved of.

Dr. D. Grierson, proposed at last meeting as a Member of the Society, was ballotted for and duly elected.

John Andrew Baumbach, Esq. proposed a Member of the Society, by R. W. Crawford Esq. seconded by J. R. Hadow, Esq. to be ballotted for at next meeting.

Lieutenant J. T. Barr, proposed as a subscriber to the Library, by Major General Barr, seconded by the Secretary, was admitted agreeably to the regulations.

The Committee appointed at the monthly meeting of the 12th December last, to audit the accounts and for other financial objects, reported that the confused state of the accounts prevented them completing the duty assigned them by the meeting; but submitted as accurate an *estimate of the Society's annual income, expenditure, and debt*, as in the yet undetermined amount of deficit, not accurately accounted for, could be made out.—It was evident from this financial statement that the expenses of the Society's *quarterly journal* could no longer be debited to the current income of the Society, but must be liquidated from special subscriptions to this individual object.

In reference to the proposition submitted at the monthly meeting, that the above Committee should name the sum which ought, in their opinion, to be reduced from the usual expense for newspapers and periodicals, it was suggested, by the Members of the Committee, that of the Society's available balance, Rs. 3,680 7 10, not more than one third be in future applied for newspapers and periodicals, Indian and English, and that the other two thirds, (after defraying the expenses of preserving the Museum,) be applied in equal proportions as nearly as may be, in the purchase of, 1st *Novels, Travels, and Modern Works of General Literature; and 2nd in Standard Works*. The Committee further reported that the present yearly expenditure for newspapers and periodicals is Rs. 1,635 13, and suggested that a reduction to the annual

amount of Rs. 430, should be made in these expenses. A reduction to the amount of Rs. 393 was accordingly made by the meeting.

The meeting further resolved that the list of proposed works and new editions of works, to be ordered from England, should be circulated to the managing Committee.

The following donations were laid on the table:

To the Library.

1st. Specimens of the illustrations of the rock-cut temples of India, by James Ferguson, Esq., presented by Professor Pole.

2nd. Webb's Pathologia Indica, and Medical Topography of the Ceded Districts, presented by the Medical Board.

The Secretary read a letter from Captain Cuthbert Davidson of the Bengal Army, and the Nizam's Cavalry Service, inclosing a list of Persian Books belonging to the Library of the *Durgah* of Kulburga; and proposing to forward an account of this ancient city, to be laid before the Society.

Read a letter from Professor Christian Lassen, of Bonn, acknowledging the receipt of copies of the *Visparad Yaçna, and the first volume of the Society's Journal*; and acquainting the Society that he had forwarded, through Mr. Richardson, two dissertations of his own, to be laid before the Society.

Read a letter from Professor Eugene Burnouf, of Paris, acknowledging the receipt of the 5th and 6th numbers of the Society's Journal, and returning his thanks for the presentation of the work.

Resolved that the thanks of the Society be given for the donations, and for Captain Davidson's kind communication and attention to the objects of the Society, in collecting information relative to places of interest throughout India.

The meeting then adjourned to Thursday, the 13th of March next.

At a monthly Meeting of the Bombay Branch Royal Asiatic Society, held in the Library rooms on Thursday, the 13th March, 1845.

The minutes of last meeting were read and approved of.

John Andrew Baumbach, Esq. proposed at last meeting as a Member of the Society, was ballotted for and duly elected.

Resolved that a special meeting be held on the 25th instant, to take into consideration the propriety of rescinding the resolution passed at the anniversary meeting of 1841, withdrawing the selection of new publications from Messrs. Longman and Co., and of again entrusting those Booksellers with the selection and forwarding of new publications to the amount of £ 200 per annum.

The following donations were laid on the table :

To the Library.

1st. Thornton's History of the British in India with Map, and Thornton's Gazetteer with Map, by Government.

2nd. Falconer's Extracts from some of the Persian Poets, by the author, through Dr. Burnes.

To the Museum.

1st. Coal from the Bolan Pass by Dr. Leith.

2nd. Supposed fossil ribs in trap, Bombay, by R. X. Murphy Esq.

3rd. Specimens of fish, Bombay, by the Rev. G. Pigott.

4th. Supposed fossil fruits and bone from the desert of Egypt, by the Rev. Dr. Stevenson.

5th. Stalactites from the Grotto of Adelsberg Carniola, by Captain Hebbert, Engineers.

The meeting then adjourned to Thursday, the 10th of April next.

At a special meeting of the Bombay Branch Royal Asiatic Society, held, in the Library rooms, on Thursday the 25th March, 1845.

It was proposed by Colonel Jervis and seconded by Dr. Burnes, That the resolution passed at the anniversary meeting of Wednesday the 10th November, 1841, withdrawing the selection of new publications from Messrs. Longman and Co., be rescinded, and that these Booksellers be again entrusted with the selection and forwarding of new publications, but limited for the present to £ 150 per annum, inclusive of all charges for freight and insurance.

The proposition was agreed to unanimously, and the meeting of the Society dissolved.

At a monthly meeting of the Bombay Branch Royal Asiatic Society, held, in the Library rooms, on Thursday the 10th April, 1845.

Read and approved the minutes of last meeting.

The Secretary read extract of a letter from Major Rawlinson, dated Baghdad the 12th of February 1845, intimating that he had lately sent to H. H. Wilson, Esq. Director of the Royal Asiatic Society, a literal translation of the whole of the *Be-Situn Cuneiform Inscriptions*, (about 500 lines) giving a detailed account of the campaigns of Darius Hystaspes, and containing various notices of ancient Persian History of the highest interest.

Extract of a letter from Captain LeGrand Jacob, dated Belgaum 3rd of March 1845, was also read, accompanied by a table of corrections of sundry errors in the lithographed copy of the *Girnar-Asoka-Pali Edict*, published in No. V. of the Society's Journal, and previously translated and commented on by the late James Prinsep.—Captain Jacob intimates that possibly his own copy of the inscription may be defective, but the corrections sent will aid any revised translation of this very ancient inscription, which may be made by other Orientalists.

The following donations were laid on the table:

To the Library.

By the author, Professor W. Pole, M. R. A. S, and of the Elphinstone College.

1st. Prize Essay on the Friction of Steam Engines.

2nd. A tract on the pressure and density of steam.

3rd. A treatise on the art of Painting on Glass, translated from the German.

From Government, 3 printed copies of the proceedings of the Board of Education for the year 1843.

To the Museum.

Fragments of a Greek statue, from Upper Egypt, by Assistant Surgeon Pigou.

4th. Petrified shells, ditto.

Specimen of *Gum Caoutchouc* as collected from the tree, and brought from the island of Borneo, by Lieutenant Robinson, of the Bengal army.

The meeting then adjourned to Thursday the 8th of May next.

At a monthly Meeting of the Bombay Branch Royal Asiatic Society, held, in the Library rooms, on Thursday the 8th May, 1845.

The minutes of last meeting were read and approved of.

Ten Members of the Society not being present, the ballot for Archibald Smart Esq., proposed at last meeting as a member of the Society, was postponed, agreeably to the regulations, till the next meeting.

E. T. Downes Esq., proposed as a member by Captain H. B. Turner, and seconded by R. W. Crawford, Esq. to be ballotted for at the next meeting.

The Secretary read a letter from Comte Auge St. Priest, President of the "Scientific Commission for the discovery of American Antiquities," dated Paris, 5th February 1845, requesting the sympathy and aid of the Bombay Branch Royal Asiatic Society in promoting a proposed expedition for the investigation of American Antiquities, composed of English, French, and German Literati, who are to be associated in this undertaking under the auspices of the above Commission.

A letter from M. Pirtz, Director of the Royal and University Libraries of Berlin, acknowledging the receipt of the *Yaçna and Visparad*, was also read, and expressed grateful obligations to the Society for the presentation of these works to the institutions, of which M. Pirtz is the director.

The following donations were laid on the table:

To the Library.

By the author, V. Fontanier, *Voyage dans L'inde et dans Le Golfe Persique, par L'Egypte et la mer Rouge*, accompanied by a letter.

The Rev. J. M. Mitchell then submitted a paper on the Theological dogmas and practical religious ceremonies of the Parsees, accompanied by notes: for which, and the donation to the Library the Secretary was directed to return the thanks of the Society.

The meeting then adjourned to Thursday, the 5th of June next.

At a monthly Meeting of the Bombay Branch Royal Asiatic Society, held, in the Library rooms, on Thursday the 5th June, 1845.

The minutes of last meeting were read and approved of.

Archibald Smart Esq. and E. T. Downes Esq., proposed as Members of the Society and duly seconded at previous meetings, were balloted for and unanimously elected.

Read extract of a letter from Captain Haines to the Secretary, announcing that 63 Hamaiyaric inscriptions were lately brought from the ancient Mareb, by J. Arnauld, a French Apothecary, who shewed them to Captain Haines, but declined to permit him to take copies of them. M. Arnauld had since presented these to the Asiatic Society of Paris, which was about to present a copy to the Royal Geographical Society of London, for decypherment by the Rev. Mr. Forster.

Read a letter from William Hamilton, Esq., Secretary of the Geological Society of London, acknowledging the receipt of Nos. 5 and 6 of the Journal of the Bombay Branch Royal Asiatic Society, and expressing the thanks of the Geological Society for this acceptable present.

Read a letter from Sir Erskine Perry, accompanied by nine volumes of the annual reports of the Poor Law Commissioners, and one volume of the report of Her Majesty's Commissioners on Criminal Law. The letter recommended that the Society should obtain in continuation the reports of the Poor Law Commissioners as they are published; which recommendation will be sent to Messrs. Longman and Co. with instructions to select from and forward such parts of the Poor Law reports as may be obtained for the Society at a moderate annual expense.

Read a letter, from William Escombe, Esq. Secretary to Government in the General Department, acknowledging the receipt of the Secretary's letter dated the 13th ultimo, acquainting the Society that the Honorable the Governor in Council, is pleased to subscribe for *twenty five copies* of the Society's Journal, and requesting that contingent bills for the cost of the Journals be submitted by the Society.

Read a letter from Mr. J. McCudden, dated Poona, the 24th May, accompanied by a prospectus of a work entitled "Oriental Eras," comprising those in use among Christians, Hindus, Mahomedans, Parsees, &c., accompanied by Chronological notices of important events in India and the East, and requesting the Society would become subscribers to the work. The Society agreed to Mr. McCudden's request.

The following donations were laid on the table:

To the Library.

1st. By the Translator, the History of the defection of the United Netherlands from the Spanish Empire, translated from the original German of Schiller, by Lieutenant E. B. Eastwick B. I. 1 volume.

2nd. No. II. of Illustrations of India Ornithology, by T. G. Jerdon Esq., Madras Medical Establishment.

3rd. By Sir Erskine Perry, Kt. 9 volumes annual reports of the Poor Law Commissioners.

The Secretary then read a paper containing observations on the coins of *Undophares*, or *Gondophares*, who is traditionally said to have been the co-temporary of St. Thomas the Apostle.

The Secretary was directed to return the thanks of the Society, for the various donations, and the meeting adjourned to Thursday the 3rd July next.

JOURNAL

OF THE

BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

JULY, 1847.

ART. I.—*Notes on the Mahrah Tribe of Southern Arabia, with a Vocabulary of their language, to which are appended additional Observations on the Gara Tribe.* By Assistant Surgeon H. J. CARTER, Bombay Establishment.

In presenting to the Society this vocabulary of the Mahrah dialect, I regret that I have so little information to add to it, concerning the manners and habits of the people by whom it is spoken.

The Mahrah tribe (مهرة), descended from the ancient Hamyari of Hadramaut, occupy an extent of country exceeding that of any other tribe in the southeastern part of Arabia. The limits of their coast are generally allowed to be the opening of the great Wadi Masilah, on the S. W, in 51°13' E. Long. and the town of Damkôt (دمقوت), in the bay of Al Kamar, on the N. E, in 52°47,' E. Long., giving them a coast-line of about 135 miles; thus, while we have it in our power accurately to determine their maritime boundary, we know little or nothing of the extent of their country inland, though we may justly infer that the tribe is spread over an immense area, for, if we talk of entering Hadramaut by Makalla, the people of that place tell us we shall be assailed by the

Mahrah tribes on our way, and if we ask the inhabitants of Marbát, three hundred and sixty miles north-east of Mukalla, what inland tribe comes next to the Beni Gara, their answer again is, the "Mahrah," while the Mahrahs themselves affirm that the divisions of their tribe extend to the confines of Hadramaut.

Like the other great tribes, they have their divisions, their subdivisions, and their families or *bâits* (بيت); but being so numerous and spread over such a vast extent of country, they are as much at war with each other, as if each division and subdivision were an independent tribe of itself.

In stature the Mahrahs are generally undersized, and when compared with their eastern neighbours, the Beni Gara, may almost be considered diminutive. In speaking however of their characteristic features, it should be understood that my observations are entirely confined to those who inhabit the southeastern borders of their territory. They are by no means a handsome race, for their features are for the most part short and irregular, their eyes small, sunken, black, and piercing, with a cunning and very frequently a sinister expression of countenance. Their dress is the same as that of the Garas, and likewise their arms, excepting that the double pointed stick is not commonly used among them. In their mode of salutation they touch each other's fingers in the manner of the Garas, but instead of kissing them afterwards, they bring their noses in contact with each other, side by side, and at the same time gently, though audibly, inhale the air through their nostrils. Their mode of subsistence follows their position; those of the interior live principally on milk and flesh, with now and then dates and a little *durah*, if they can afford to purchase it. The latter is ground in a mill called a *mutakanêt* (مطحنة), which consists of a flat oblong slab of stone, and a kind of rolling pin, moved backwards and forwards by a single person.—While the Bedwins of the interior live principally on milk and flesh, those on the coast seldom get any thing more than fish and dates. The fish they take, either in nets, or with a hook and line; but as few can afford to purchase either boat, or nets, and as they are not in the habit of using the inflated skin or *kirbah* (قربة), mentioned by Ptolemy, and so common on the coast to the northeastward of the bay of Kuria Muria, they drop their lines from the projecting shelves of cliffs, which overhang the sea.

have seen them with their shields and swords crawling down the precipitous side of *Ras Fartak*, which looks towards the bay of Al Kamar, where the cliffs in many parts, present a scarp 1,000 feet high; and our Pilot, who was from that neighbourhood, assured me that annually, one out of seven, or certainly one out of ten, perished from a false step, while prosecuting this perilous descent to obtain their daily food. Yet such is the force of habit and example handed-down from their forefathers, and also that of necessity, (for the extreme poverty of the different tribes admits of no pretext, under that of war, for any encroachment made by their neighbours on their several territories, in quest of food for man or beast,) that the *Bait Saloam* (سلوم), who dwell on the barren ridge of *Ras Fartak*, have no other alternative than to descend daily for this miserable support, or perish above from a want of nourishment.

The Mahrah fishermen have also another contrivance for taking large sharks, and a species of ray exceeding sometimes fourteen feet in breadth, which frequents this coast. This consists in "rigging out a *darak*" (to use a nautical phrase) from the side of a cliff, with a pulley in the end of it, over which the line plays; in this way having chosen a favorable spot for fishing, they raise up sharks from eight to ten feet long; and having divested them of their fins, salt and dry the flesh for food, and sell the former to the Nakhudas of Bagalos, who trading along this coast purchase them for the China market. I may here mention that not only among the Mahrahs, but with all the inhabitants of the southeastern coast of Arabia, *Lahm* (لحم), or the dried flesh of sharks, is the staple article of food and commerce.

The Mahrahs are miserably poor, and their plains, mountains, and valleys, with the exception of the highland of *Hattob* (حطوب) close to Damkot, are rocky, sandy, and almost barren. They call the distant land lying due north of their coast, the *Arz-al-ahkaf** (ارض الاحقاف).

Religion they have little, or none. I was informed by our Pilot that it was only here and there on the coast that you met with a man, who could say his prayers, while the Bedwins of the interior were wholly devoid of religion, having no idea of God or devil, of heaven or of hell.

The Mahrah dialect, as spoken by the Mahrahs themselves, is the softest

* Meaning the region of sand-heaps.—*Editor.*

and sweetest language I have ever heard; indeed, they appear to be so sensible of this, that they liken their *kalam el Mhari* (كلام مهري) as they term it, to the conversation of birds (مثل كلام ال طير). In my vocabulary I shall refrain from making any philological observations on it, preferring to leave this part open to the learned Secretary, whose extensive knowledge of the subject is so unquestionable that I am sure nothing will escape his notice, which is deserving of interesting or useful remark. All therefore that remains for me to do, is merely to offer the few preliminary observations which are necessary to convey to the reader an idea of the sounds of certain letters, and the pronunciation of the words in which they are introduced, leaving the *Arabic* spelling of the words exactly as they were written for me, by Mohammed bin Hamed *Mahri*, Pilot on board the H. C. Surveying Vessel *Palinurus*, in the Bay of Al Kamar, and resident of the village of *Ahsoel* (احصويل), eight miles west of *Ras Fartak*.

Accents.

Long accent (-), *short accent* (˘), *diphthong* (˘).

Rendering of vowel sound.*

a	as	*u*	in	*but*	*oo*	as	*oo*	in	*boot*
ee	as	*ee*	in	*see*	*ē*	as	*ay*	in	*say*
i	as	*i*	in	*thin*	*é*	as	*ey*	in	*they*
o	as	*o*	in	*note*	*oo*	as	*ow*	in	*how*

ا, for the most part has not a broad sound; thus, امهر with the Mahrahs has almost the same sound as that of the proper name Mary.

ج, is generally pronounced soft; I may here remark that صحيا forms as good a word as can be adduced for the purpose of giving the different pro-

* The system of orthography, followed by the author in his vocabulary of the Mahrah dialect, though not that usually followed in the Journal and other oriental publications, has been left unaltered except in the body of the notes, where it has been changed for that more commonly adopted by Orientalists.—*Editor.*

associations of this consonant along the southeastern coast of Arabia. Thus, it is pronounced as in *Hebrew*, by the inhabitants south of Maskat, and about Ras Al Had; *hard*, by the people of Dofar, and the inhabitants of the coast between Makalla and Aden; and *soft*, by the Mahrahs. By the first, it is called *Sair*; by the second, *Soghar* ص; and by the Mahrahs, *Sajar* or rather *Zájar*. Vide ص.*

ش, has a very peculiar sound in the Mahrah dialect; it is formed by placing the tip of the tongue against the anterior part of the palate, and allowing the air to pass out of the mouth on one side or the other of it, in the manner of a lisp, following it with the sound of the letter *l*, as in شيوط *fire* pronounced *shleeote*.

ض, has the softer sound of the letter *z*, as in صاجر which is pronounced Zájar.

ع and غ have their peculiar sounds, and sometimes the latter has the sound of *g* in *gui* (F) as in غيج *man* pronounced *gaij*.

In the *English* spelling, however, of the Mahari words, I have endeavoured to give the pronunciation of the Mahari who dictated them to me, without much reference to the literal rendering of the Arabic character. This, which would be disadvantageous if the *Arabic* spelling was perfect, becomes the reverse in the present instance, where the pronunciation will frequently point out the inaccuracies of the Mahari orthography.

"*Notes on the Gara Tribe*;" *continued from p.* 201 *Journal No.* ix. p. 201. 1845.

Since my notes of last year were presented to the Society, I have again had an opportunity of mixing with the Gara tribe; which, while it afforded me the means of collecting a little more of their history, has enabled me to define more correctly the coast-limits of the district they occupy.

Formerly, these were stated to be the town of *Merbat* on the northeast,

* In these observations the Arabic orthography of the names of three different portions of the south eastern Arabian Coast appears to be confounded: namely the tract of country called after the now desolate fort of *Al-Shihir* (الشحر!) in lat; 14 38 39 N. longitude 49 27 35; the Cape of *Shajr* شجر between Ras Fartak and Ras Marbat; and the town and district of *Sohar*, or *Zohar* صحار on the coast of Oman.—*Editor.*

and *Ras Al Sejr* on the southwest, but, since I gathered this information from the inhabitants of Dofar, an intercourse with the Mahrahs and Garas in the bay of Al Kamar, during its survey, has enabled me to fix with more accuracy the exact line or neutral ground of demarcation between the two tribes on the west; while as regards the east, I have elicited from different sources the fact, that the Beni Gara are the sole inhabitants of the Sabhan mountains, which extend from Marbat to Hasek. Hence it will appear, that, instead of *Merbat* and *Ras Al Sejar* being the true limits of their coast, the village of *Hasek* will be the northeast, and, as ascertained from the united testimony of the Mahrahs and Garas in the bay of Al Kamar, *Ras Tharbat Alee* ظربت علي will be the southeast termination of their maritime boundary. Between Ras Tharbat Alee and Damkot, there are as many Mahrahs as Garas, therefore this interval may be considered neutral ground.

Respecting the *Tribes*, whose several districts come next the confines of the mountainous tract inhabited by the Beni Gara, I have not been able to obtain much satisfactory information. The Mahrahs come next to them in the bay of Al Kamar, but at Hasek there are remnants of several tribes, the principal of which are the Gara ! قرا, Mahra ! مهرا, Afar عفار, Hassarit حسريت, and the Baramah برامعه; while all the towns in Dofar, with the exception of Tagah and Marbat, are inhabited by the Al Kathiri, ! ل كثيري, who originally came from Hadramaut, and are always at war with the Beni Gara. Next the Garas, inland, I am told, are the *Thoar* طور, a large branch of the Mahrah tribe, the Afar, also a large tribe, and the Al Kathiri; these inhabit the table land called Nejd, or Nejdi, نجد ونجدي on which the frankincense tree grows, two days inland from the shore.

The Mahrahs and Garas affirm that they are descended from the ancient Hamyari, and that the Afar and Al Kathiri are descended from the Ghafiri غافري

The following are some of the principal branches of the Gara tribe.

BENI GARA OR HARLI.

بني قراحكلي

Bin Kahtan..... بن قحطن	Bâit Kashob..... كشوب
Bâit Mashanee..... ما شني	—Jabob..... جبوب
—Ayesa (*Esau*)..... ايصا	—Ghajod..... قجاود
—Makheir..... مخير	—Said..... سعيد
—Talok..... طبوك	—Temin..... تيمن

Several of the Garas assured me that Gara and Koreish were synonymous,* and that the latter was their ancient appellation. But to ascertain this more satisfactorily, I took the opportunity of asking the chief Shaikh of the Garas, in the presence of an influential Saiad, with whom I was then staying, if it were from his tribe that the prophet Mohammed sprung, and what was the ancient name of his tribe? To the former he replied in the affirmative, to the latter, "the Koreish." In both instances he was uncontradicted by the Saiad. By another person, however, who was called upon in the presence of a large assembly, as an authority in matters of history, to give me some information about the neighbouring tribes, I was told that the Garas and the Koreish were *not* the same people. Here the question rests, so far as I had an opportunity of determining it, but, as the matter is not altogether devoid of interest, I relate the observations for whatever, in the hands of others, they may prove worth.

Besides Gara, they are also called Hakkee, and at the present time the two terms are used synonymously, though the first is by far the most general appellative.

The *Kahtan* family or branch, is considered the head or root of the Garas, and the Shaikh of this family, the Shaikh of the Garas; Salim bin Thooree bin Kahtan, is the name of the present Shaikh; it was this man, who in a *blood feud*, murdered Saiad Mohammed bin Ageyl, the late governor of Dofar. Standing erect, he is full six feet high, finely proportioned, with most manly and handsome features, combining, with a generous expression of countenance, all the gentleness and determination, that could be sought for in the most chivalrous character. Though the murderer of the last governor of Dofar, (under whose sage but severe discipline that district was restored from the wretchedness of the worst state of anarchy, to a condition of ease and prosperity, and whose loss, by all the tribes inhabiting Dofar and its neighbourhood, has not failed for the last fourteen years, to prove a source of the most bitter lamentation) this man, (ignorant of the crime he had committed, in the eyes of an Englishman, and satisfied of the rectitude of his conduct as a Gara Chief,) calmly asked, why the English, knowing the extreme fertility of the district of Dofar, and the wretched state of the inhabitants for want of a ruler, did not send some one to take the country, and give them the benefit of our good Government. The

* The Koreish being the tribe from which the Prophet Mohammed derived, his origin, is it not probable, that if there be any truth in this assertion, the tribe of Garas derive their appellation from having early possessed, a knowledge of letters, as the word *Kara* قرا literally signifies one who practises reading?—*Editor.*

Kahtan family are regarded as the great fighting men of the Gara tribe, and it is said that five Kahtans are enough to put to flight the whole of the Beni Gara.

To shew the faithful manner in which the duties of *Rabeea* ربيع, or *Protector*, are discharged in this tribe; how a man having a *blood feud* with another party may enter with security the territory of his adversaries; and under what circumstances a *blood feud* may be established, I may mention the following act of one of the *Kahtan* family, who accompanied a friend as *Rabeea*, from the mountains behind Dofar to the town of Silalah. When arrived in Silalah, two of the *Rabeea*'s cousins approached the man whom he was protecting, and assailed him on account of a *blood feud*, which formerly existed between them. The *Rabeea*, (now the decrepit figure, of a once tall and powerful man, and who was sitting by me, when the Saiad, with whom I was staying, related the story,) faithful to his pledge, and having no alternative but to slay his cousins, did so, with as many blows of his sword, while the friend whom he protected fled back to the hills, and the *Rabeea* claimed the Saiad's protection until a large party arrived from the mountains to guard, and conduct him back to his own clan. In this act, we observe the binding nature of the pledge,—the *Rabeea* opening a *blood feud* with another party, his own relations for the sake of faithfully discharging the duties of the office he had undertaken. Such instances of fidelity are by no means uncommon among the wild and ignorant Bedwins. The *blood feud*, as a matter of course, is greatly dreaded by all, for it not only immediately excites families to mortal combat, but if remaining unsettled, which is most commonly the case, entails all the misery and bloodshed connected with it on the next generation, by whom, if not satisfactorily decided, it must descend to the third and fourth, and so on, until it is either amicably arranged or entirely forgotten. Thus, with the two men murdered by the *Rabeea* above mentioned, who belonged to a distant branch of his own family, their sons are still boys, but when they arrive at manhood, they will be expected by their nearest relations to take up the *blood feud*, occasioned by the murder of their fathers, and will either kill the old *Rabeea*, or if he be dead, two of his branch of the family. A *blood feud*, such as this is, arising between two branches of the same family, is considered the worst; it is blood against blood. In the assault of the young men, when they are grown up, on the *Rabeea*'s family, they themselves may be killed, or instead of only killing two of the *Rabeea*'s family, they may mortally wound three; in the first instance, instead of a *blood feud*, on account of two, there will be one of four against the Rabeea's family, while in the second instance, a *blood feud* will still exist between the families on account of the murder of a third person,—one more than was required from the *Rabeea*'s side.

The difficulties which attend a *blood feud* may be endless, and the cessa-

quences are disastrous, and although they tend greatly to restrain the Bedwin from committing bloodshed, and contribute much to protect his life, yet they are too often disregarded by this "*wild man*," who under the influence of passion will frequently commit murder on the most trivial occasion.

Note. For Gharah غارة read Gara قرا in my "Notes on the Gharah Tribe" published in No. ix of this Journal. It is also written قرو H. J. C.

VOCABULARY OF THE MAHRAH DIALECT.

English	Arabic	Mahareo	Pron: of Mahareo.
Age	عمر	عامر	āmar
Angry	غضبان	مغنيط	maghateeth
Arms Pl. (body)	الاذرع	حيدوتن	hēidotan
Army	عسكر	عسكر	askēr
Ant	نملة	نوميل	nomeel
Antimony	كحل اثمد	كاحل	kahīl
Appetite	توق	توک	tōq
Anchor		بوهرت	boharat
Ashes	رماد	رميد	rameet
Arrow	سهم	سهوم	sahom
As before	كما اول	هاش هوالا	hash hawalee
Above	فوق	حغلا	haghla
Afterwards	بعد	صغورا	maghora
Always		دويم ذاوقات	doom da sukat

B.

Bad	شرير	يغموم	yaghmom
Bravery	بلاطة	حروبي	harobee
Back	ظهر	ظهرموتن	dhara mōthan
Bone	عظم	عظط	athēth
Blood	دم	دم	doom
Belly	بطن	جوف	djof
Brother	اخ	غاک	ghak
Blind	اعمي	عوريت	awareet

Body.....جسد.....جساد.....jassēd
Beard.....لحية.....لحيت.....alhēt
Bowels.....مصارين.....مشغين.....moshghēn
Bread.....خبز.....خابز.....khābs
Butter.....زبدة.....خزرات.....khazarēt
Black.....اسود.....حور.....haowar
Blue.....كحلي.....حور.....haowar
Bracelet.....سوار اقرطه.....مناكت.....matakēt
Book.....كتاب.....كتوب.....katob
Bed (of sleep).....سرير.....جودري(ذاشنات).....jodaree d ashan't
Battle (land).....قتال.....غورت.....ghorāt
Barren.....صحال.....هيور.....hīoor
Brook.....جدول.....هذهبوت ذنهر.....hazabōt d'nahr
Branch.....غصن.....رنات.....ratāt
Bark.....قشر الشجر.....قشروت.....kasheeroot
Blade of grass.....السرخ.....رهوت.....rahoot
Brass.....نحاس.....نحوس.....nahos
Bite.....عضة.....صوب.....sob
Bitterness.....مرارة.....مرير.....mareer
Blow.....لكمة.....الكمات.....alkamēt
Bird.....طير.....عقاب.....agāb
Bug.....كفون.....kāton
Bridle.....لجام.....غيناج.....ghānanej
Bull.....ثور.....ثور.....thor
Bow.....قوس.....مندافات.....mandofēt
Boat.....سنبوق.....سنبوق.....sambook
Bee (honey).....نحل.....هانوبات.....hanobēt
Beak (of bird).....منقار.....اخوه.....akhoh
Behind.....خلفورا.....منغيرا.....manghēra
Below.....تحت.....مصا.....amsa
Bad.....بطال.....يغموم.....yaghmom
Balance.....ميزان.....ميزون.....meezon
Brain.....دماغ.....دماغ.....damagh

Bagalo.....بغلة..... سايت.....sáit
Bottle.....لوقت.....logat
Buoy.....كوي.....koee

C.

Cow.....بقرة..... بقريت.....bakarét
Cash.....فلوس..... درهم.....dareeham
Cold.....برد..... قاصم.....kasim
Children.....اولاد..... قليان.....galleean
Cheek.....حدود..... ظجمتك.....thajamatak
Chin.....دقن..... ملحوت.....malhōt
Coffee.....قهوت..... قهوات.....kāwét
Comb.....مشط..... مشريق.....mashareek
City.....مدينة..... رحبات.....rahabēt
Coffin.....صندوق الميت..... منعش ذاميوت.....manhosh da meeoot
Conqueror.....غالب..... خزه.....khāzā
Conquered.....مغوب..... فوصل.....fōsal
Cultivated.....مفلوح..... قاجيد.....kajoed
Cloud.....سحاب..... عفور.....afoor
Clouded..... عفورماكن.....afōr maikan
Camel.....جمل..... هيبيت.....héibet
Cat.....قطه..... اسنورت.....assanōrt
Cock.....ديك..... ديك.....deek
Copper.....غاس..... صافر.....sāfar
Cotton.....قطن..... غوزل.....ghozāl
Cocoanut tree..... ميدا.....mēda
Crooked.....حنو..... عواج.....nowaij
Clear (op. foul).....رايقة..... سوال.....soal
Calm a (sea)..... شوال.....shoāl
Clothes..... خلواق.....khaloq
Corn.....قمح..... عمال.....amēl
Colours (to hoist).....بيرق..... غلي بيرق.....ghala bériq
Creeper (anchor)..... بروصي.....barosee
Crying..... تبيك.....tabeek

Cable ..... مسبوا ..... masabooa
Colt ..... عفو ..... حبريت ..... habarēt
Crab ..... حيشي ..... héishee
Chain ..... سلسلات ..... salsalét
Cover (book) ..... قرطوس ..... gartos

D.

Dry ..... يابس ..... قوشا ..... kōshā
Dog ..... كلب ..... id .....
Death ..... موت ..... ميوت ..... meeoot
Dumb ..... اعرج ..... عجم ..... ajam
Deaf ..... طرشه ..... سقيت ..... sakeet
Day ..... يوم ..... نهور ..... nahoor
Dawn ..... فجر ..... فاجر ..... fējar
Defeat ..... هزيمة ..... هبوذفرعم ..... habo da faram
Deep ..... عميق ..... غازر ..... ghazar
Dark ..... مظلم ..... كتوي ..... katéwee
Donkey ..... حمار ..... حير ..... héir
Duck ..... وردك ..... مقوقوات ..... makokwat
Dove ..... حمامة ..... عيثار ..... áithar
Date ..... تمر ..... تومر ..... tōmar
Disease ..... مرض ..... مريض حمول الع ..... mareedth hamol aloo
Dokhan ..... ذحن ..... داخن ..... dākhan
Dthurah (grain) ..... ذره ..... ذريت ..... dtharét
Date-tree ..... ناخل ..... nākhil
Dolphin ..... صعوبون ..... saobōn

E.

Eight ..... ثمانيه ..... ثمنيت ..... thimaneet
Ears ..... اذن ..... حيذان ..... héidthén
Eye ..... عين ..... id .....
East ..... مشرق ..... شرقوت ..... sharkoot
Earth ..... ارض ..... id

Eyebrow.....حواجب.....احجور.....ahjōr
Eyelid....شقرين العينتك.....شقوق العيون.....shakareen ul aientak
Empty.....فادغ.....خلي.....khalee
Egg.....بيض.....ibd.....
Earning.....حلق.....حلاق.....hŏlĭk
Evidence.....برهان.....برهون.....barhon
Enemy.....عدو.....عدو ناغل.....ādo-naghal
Eagle.....نسر.....نوهر.....nohar
Ear (of corn)...سنبلات.....سبلات.....sibalat
Interment.....دفنة.....الجف ذ اقوبر.....alegaf d'gobar
Easy.....سهلة.....سهيل.....saheel
Ever.....ابدن.....الوم.....alōm
East-wind (N. E.).....هازياب.....hazeeb
Edge sharp.....حدمكن.....hud mĕkŏn

F.

Fat.....سمين.....صالح صالحات.....salah or salhĕt
Fishing line.....تين.....غلف.....ghalf
Fidelity.....امان.....مشرة.....misharee
Face.....وجه.....واجح.....wojah
Fire.....نار.....شيوط.....shleeŏt
Father.....اب.....حيب.....hĕb
Flesh.....لحم.....تيوي.....teewee
Frankincense.....لبان.....شيحز.....sheeaz
Fingers.....اصبع.....شوبع.....shōba
Foot.....قدم.....مدحاقك.....madhakak
Four.....اربعة.....ربوت.....rohōt
Five.....خمسة.....خموة.....khomo
Full.....ملون.....ملون.....malon
Fish.....سمك.....صيد.....sēt
Fort.....طابية.....قلعت.....kŭlāt
Fertile.....مخصبه.....فاجيث.....kŏjeet
Feathers.....ريش.....قطانول.....katalol

Frog.....صعذعة..... ظفزات.....dthafzāt
Fins.....حناح.....علفوت.....alfōt
Fly.....ذبابة..... هذبيت.....hadthabét
Flea.....برعوث.....حشميت.....hashmét
Flower.....ذهر.....ذبري.....athéree
Famine.....قحط.....ذبون.....zabōn
Fatigue.....عنا.....تبك.....tābak
Friendship.....صحبة.....صديق.....sadeeq
Flint (for striking light).صوان.....عيبال.....aibal
Fever (ague) .... حمة.....جولو.....joloo
Forehead.....حبهة.....فيست.....feesit
Foul (op. to clear).....كدار.....kadér
Fox ..... ثعلب.....عيتال.....āthal
Fish-hook.....ميدار..... هانوبات.....
Far.....بعيد.....راحق.....réhak
Flock of sheep (whose?).....هارون المون.....hāron almōn
Flying fish .....فريفرت.....féreefart
Fear.....خوف.....فزعك.....fazak

G.

Goat..... ....معذا..... حوز.....hoz
Goat, she.....معذت.....حوز بيس شخوف.....hoz bees shakhof
Green..... اخضور.....اهظور.....ahdthoor
Grand-father.جد حب ذا حيبك..... ديدك.....déslak
Grand-mother.....ست.....هماذ هماك.....hamēdthmēk
Gold.....ذهب..... ذهيب.....dtheeb
Gate or door.....باب.....بوب ذ مدينت.....bob d'madeent
Gun (cannon)... مدفع.....Id.....
Gunpowder.... بارود.....Id.....
Goat, he....جدي تيس..... تيه.....teyah
Grain.....حب..... عيش.....āish
Gravel .....حصا.....حفش.....hafash
Grief .....حزن..... حزنوت.....hazanōt

Good.....طيب.....مشره.....
God.....اله.....بعلي.....Bālee
Girdle (leather).....حوبل.....habbal
Gazelle.....غزال.....صعر.....sār
Grass (for sheep).حشيش.....شجار الحارون.....shajar al haron
Garden.....جنينه.....ذابر.....dahabar
Gum arabic.....صمغ.....صمغ.....samagh
Girl.....بنت.....غجيت.....ghajeet

H.

Hen.....دجاجه.....دجوجت.....dijojat
Honesty.....عدل.....مونت.....monat
Hand.....يد.....حيد.....héid
Head.....راس.....حروه.....haroh
Hair.....شعر.....شف.....shof
Heart.....قلب.....Id.....
Half year.....نصف سنه.....فقح ذ سنات.....fakah da sinat
Hot.....حر.....حرق.....haraq
Horse.....حصان.....احصون.....hassōn
Hoofs (of horse).حوافر.....مرظام ذ حصون.....marthan d'hasoon
Horns (of goat)..قرون.....قرون الحوذ.....karon al hoz
Hide.....جلد.....Ibd.....
Hunger.....جواع.....
Hurt.....مصرة.....جياك.....jeeāk
Heavy.....ثقيل.....شيبر.....sheebar
Hire.....كرا.....كيرا.....keeree
Heaven.....ذ الهل خير.....dthal al khéir
Hell.....ذ الهل شيوات.....dthal al shleeōt
Honey.....عسل.....عسل.....
Hair-band (bedwin).....قديد.....kadeed
Heel.....عقب.....مرظامك.....mardthāmak
Husband.....زوج.....غيچبس.....qájās
How?.....كيف.....يبوه.....yeboh

Hare.....ارنب.....هارناب.....harnab
Here.....هنا.....بوه.....boh
Herd of Cattle whose?.....بقار المون.....bagar al moo
Herd of Camels whose?.....ربكوب المون.....rékobal amm
Hook (fishing).....قلاو.....kalaô

I. J.

Judge.....قصى.....قوظي.....kodthee
Iron.....حد يد.....Id.....
Infant.....طفل.....غيجان قنون.....qûjan ganoon
Inscription (on stone).....مكتبه.....كتوب بصور.....katob b'ssowar
Joy.....فرح.....Id.....
Jambeea.....جنبيه.....جنبيت.....jambeea
Ibex.....واعل.....wäal
I.....انا.....هوه.....hoae
Indigo.....صبغ.....sabagh
Idle.....كسلان.....كسول.....kasool

K.

Kid.....جدي.....اهوطر.....ahotar
Knee.....ركبة.....برک.....barak
Knife.....سكين.....عيس.....sîs
Kick.....رفسة.....مركظات.....markadthat

L.

Looking-glass.....ميروت.....méroot
Liver.....خنفيش.....khanfésh
Lie.....بادي.....bêde
Leg.....ساق.....لشرنك.....lasharank
Lip.....شفة.....كرفيف.....karfeef
Laugh.....ضحوک.....dthahok
Light.....نور.....ظوي.....dthôee
Left.....يسرة.....حيمل.....hémal

Large.....كبير.....اثاخ.....théakh
Lamp.....مصباح.....Id
Lofty.....عالية.....راحق.....rahak
Lizard.....برص.....ظوب.....dthob
Louse.....قملة.....كنميت.....kanamét
Leaf (Pl) .....ورق.....صاف.....saf
Lime.....نورت.....norét
Light (op. heavy).....خفيف.....khafeel
Lame.....اعرج.....ثبار.....thabēr
Loud.....رصاص.....رصوص.....rassos
Lungs.....فشة.....نسامك.....nasēmak
Lightening.....برق.....بورق.....boriq
Love.....محبة.....عجبك.....ojbak
Loose (vest)...عريض.....شاخ.....shēkh
Less.....قليل ولا.....شي خور.....shee khor
Land high.....نجد.....بديت.....badeet
Land wind N. W ! .....نعشي.....nashee

M.

Man.....رجل.....ضيج.....qūj
Milk.....حليب.....شخوف.....ishakhof
Mouth.....فم.....خوك.....khok
Mother.....ام.....هماك.....hamēk
Month.....شهر.....ورخ.....warakh
Morning.....صباح.....كصوبح.....kasobah
Moon.....قمر.....واربت.....wareet
Mane..شعررقبة البهايم.....شوف الحسون.....shoof al hassūn
Mourning.....ممرمر.....قميس.....gamees
Mill (of. Marhahs) .....مطحنات.....matahanēt
Mill (of India) .....راحات.....rahāt
Mule.....بغل.....بغلات.....baghalét
Musquitoe .....ذرذير.....dthardtheer
Merchant .....التجار.....tajeer
Massack (skin)... قربة.....حنيت.....hanét

Mist.....ضباب.....غبرات.....ghabrét
Mountain.....جبل.....جبال.....jibél
Monkey.....قرد.....منجه.....minjah
Misfortune.....نكبت.....مقوت.....matōt
Match (of matchlock).....فتيلت.....fateelat
More.....اقطار.....هزدي.....hazdee

N.

Night.....ليل.....بحلي.....bahalee
Nose.....انف.....نخرير.....nakhareer
Nostril.....منا خيز.....فنخرتك.....fankhar antak
Nail (of fingers &c).....اضافر.....ظفروتن.....dthafarotan
Nine.....تسعه.....اسات.....isét
Necklace.....قلادة.....صريت بغوثي.....mariyet baghot-
.....hee
Now.....الان.....لعصومه.....lasōma
Nitre.....شورة.....عديت.....adeet
New.....جديد.....هيدان.....hōdeen
Net (large).....منقع.....mange
Net (cart).....مغوير.....maghweer
Noise.....حس.....هيم.....hēm
Neck.....غوثي.....ghothee

O.

Oil.....ذيت.....سليت.....saleet
Old.....شيخ.....هاخر.....hēkar
Oath.....قسم.....Id.....Id
One.....واحد.....طاد.....tāad
Ostrich.....نعم.....قيظر.....kēthar
Opposite, in front.....قدام.....فنوون.....fanowan
Old (cloth).....قديم.....داويل.....dāweel
Old man.....شيبه.....هاخر.....hakkar
Old woman.....عاجوز.....ajoz

P. Q.

Patience.....صبر.....صبور.....saboor

Pen	قلم	قل ام	kalām
Quickly	فيسا	سمح واتوكي	samah watokee
Quarter	ربع	ربات	rabet
Palace	قصر	قاصر	kāsar
Palm (of hand)	كف	رحث	rahat
Pearl	لولو	ld	ld
Prisoner (of war)	مولوق	هوثك غيج	hothak qúj
Pistol	قرد	طابنجه	tabanjah
Plain	سهل	حيق	héik
Pain	الام	بشر	bashar
Protector		ربيع	reebā
Perspiration		نغال	naghal
Poison		سم	sam
Pit	خفرة	مخفروت	makafarout
Porpoise		معيلي	maeelee

R.

Red	احمر	عوفر	aofár
Rib	ضلع	ضيلع	dthéilah
Rain	مطر	رحمات	rahamét
Right (op. to left)	يمني	شيمل	sheemal
Ring (for finger)	خاتم	خوتم	khotim
Rock (large)	صخرة	صورحنوب	sowar hanoh
River	نهر	ناحر	nahar
Rainbow	قزح نفاجه	قذات	kazat
Rat	جردون	جراد	girēd
Root (of tree)	اصل	عروق	aroq
Rice	رز	حيراة	béraz
Rope	حبل	قيود	keeood
Ruin (of anct: building)		برهيس واقت	barhēs wakat
Road or way		حورم	horam

S.

Shade	ضل	هولا	hawala

Sincerity	صداقة	صدقات	sadigat
Scorpion	عقربة	قبين	kabeen
Spider	عنكبوت	شبكيت	shabakeet
Sea	بحر	رورم	roram
Sheep	نعجة	ثيويت	theeweet
Salt	ملح	ملحات	malhat
Serpent	حية	دبت	dabat
Shoulder	كتف	كتفه	katfa
Skin	جلد	جلدت	jaladét
Side	جنب	جنبتك	jambatak
Six	ستة	يتيت	steet
Seven	سبعة	يبات	ibét
Small	صغير	قنون	gnoon
Sugar	سكر	سكار	askeer
Stirrups	ركابات	حلقات	halgāt
Spear	رمح	قنات	kanāt
Sword	سيف	شكي	shakee
Sky	فضا	هيتم	hétem
Sun	شمس	حيوم	héiom
Star	نجمة	كبكوب	kabkob
Scales (of fish)	فلوس	صاف	saf
Snail	قرع	حوكين	hokeen
Sap (of a tree)	صمغ	حموة شرة	hamo sharah
Seed		حبيب	habbéb
Sand	رمل	بطح	batah
Stone	حجر	صور	saowar
Sulphur	كبريت	? Id	Id
Starving	تزقف	شيلا	sheela
Sleep	نوم	شنات	shanat
Slumber, sleepy	نعاس	هندك	handak
Sorrow	غم	بوكي	bokee
Song	غنا	غنوي	ghanoee
Shivering	رجفة	يطوط	yataowat
Storm	ريح عاصب	البدات	alabadet

Sick.....مريض.....حمول الع.....hamool ala
Straight (op. to crooked).....سماح.....scmals
Scissars.....مقص.....مقراض.....mograidth
Sails.....شروتن.....sharôtan
Ship.....مركب.....مركب.....markab
Silk.....حرير.....Id.....Id
Stomach.....معدة.....كرش.....karash
Silver.....فضه.....فظت.....fadthat
Saddle.....سرج.....شد.....shad
Standard (of an army) سنجق.....ذاريت ذاعسكار.....dtharabét askar
Steel (for striking light).زناد.....قرات.....Id
Slowly..هونا هين هون.....خرو خرو.....kharo kharo
Seer-fish.....كناد.....طرناك.....tarnack
South wind S. W!.كوس.....مدبات.....madeet
Seawind S. E!.....بحري.....bharee
Shaykh.....دولت.....dawalt
Slave.....حوجور.....hojoor
Safe.....امان.....مون.....môn
Spring (of water).....مايون.....maeeon
Stream or Brook.....صرف.....saraf
Stairs.....مشعبات.....mashabét

T.

Temper ill.سيرة شريرة.....غيچ فوصل.....qûj fûsal
Temper good.جيد لصيغ.....غيچ مشره.....qûj mashree
Tin.....قزير.....رازيس.....razees
Two.....اثنين.....ثروة.....tharo
Ten.....عشر.....عشريت.....ashareet
Town.....بلد.....رحبات.....rhabát
Tree.....شجرة.....شجريت.....shajareet
Thunder.....راعد.....اهد.....had
Tongue.....لسان.....الشين.....alsheen
Tooth.....سن.....مظرح.....madthora
Thigh.....فخذ.....فامك.....famak

Toes	اصبع الرجلين	شوبع	shōbah
Tomb	قبر	قبور	gōbar
To-day	اليوم	يامه	yamoh
Turtle		حميت	hamseet
Tail-fin (of fish)	ذيل	ذنوب	dthanob
Trunk (tree)	قرمة	مجندوت	majindōt
Thorn	شوك	شكا	shāka
Thirst	عطش	ظمون	thamōn
Talking	صحاطه	غروي	gharooe
Thread	خيط	Id	khēt
Three	ثلاثه	شاثات	shāthēt
Tower (round)	برج	درب	drab
Thus, so	كذا	واطه اواطه	oatha oatha
They	هم	نهه	nahana
This, that	هذه ذلك	ذه ذاك	dtha dthak
There (place)	هنك	حلوك	halōk
Track (of footstep)		حض	hadth
Tears		دمات	damāt
Throat	زورر قبة	قرد	garad
Thou	انت	هيت	hēt
Tomorrow	بكره	جهما	jahamma
Teat		واطب	wōtab
Tide flux and reflux		موشر	moshar
Tamarhind		صبور	sabor

V.

Victory	غلبه	مغلبيت	maghalbēt
Vanquished	مقهور	قهري	kahree
Valley	وادي	خوطر	khōtār
Voice	صوت	هرجات	harjat

U.

Udder		ناييت	naeet

W.

War	حرب	غورت	ghorat

Wall	سور	درب	darab
Wine	خمر	خامر	khāmīr
Wound	جرح	صوب	sūb
Water	ماء	حموة	hamoh
Wisdom	حكرم	عوقل	ōkal
Wife	امراة	حرمات	harmēt
Woman	امراة	حرمات	haramēt
White	ابيض	البون	allabōn
* Wedding	خصبة	هاروس	haros
Well	بير	Id	Id
World	دنيا	عرض	aradth
Wave	موج	موجت	mojat
Wind	ريح	رياح وكول	reah kol
Wolf	ذيب	كوب	kob
Whale	حوت	شوحات	shohēt
Wakefulness	ايقاض	قهيود	kaheod
Wet (damp)		ثيري	théree
Wool	صوف	شف	shoof
Wood	حطب	ظرب	dtharab
Wing	جناح	Id	janāāh
Weak	ضايف	هوين	hoween

Y.

Young	شاب	قنون	ganoon
Yellow	اصفر	اهظور	hadthor
Year	سنه	سنات	sanāt
You		هيت	hét
Yesterday	امس	يمشيه	yamsheeah
Yawn		فتروان	fatarooan

Verbs.

Come here	كالبوه	kāl boh
Go there	سار الحلوى	sar al halōk
Give me a little	هت شي	hat shee

Do not go there	تسيور لع	ta seeor la
Open the gate	فتاح بوب	fitaha bob
What is the matter	بوك هاشن	bok hēshān
What is your name	همك مون	hamak mon
Where are you travelling	نوكمك من هوة	nokāk man hoh
Good evening	بوة وتخفكم	boh watakhaf kom
I am a bout to go	احوم الهقر	ahom alhagar
I want to drink	احوم اثق	ahom athag
What do you want	تحوم هاشن	tahom hēshān
Where are you from	مسوفر الهوة	masofar al hoh
Dress	البوس خلوق	alabos khalōq
Never mind	يخلفالع	yakhalf ala
Ask (something)	عثيرشه	atheer (sheea)
Hear	همع	hama
Strike	البده	albadee
Collect	جمع	jammā
Take hold of it	هثق	hothuk
Open	فتاح	fataha
Come back	ردد	radād
Eat	ته	tah
Come	نكاي	nakāee
Wait	صلوب	salob
Run	هواح	howah
Do	عمول	amol
Get up	عشيش	asheesh
Sit	ثوول	thowal
Call	صوق	soq
Take	هت	hat
Drink	تقي	tokee
Go	حره	harah
Buy	شتوم	shatom
Ride	ركوب	rakob
Say	غثير	ghateer

Sneeze	عطشات	atishét
See	شنكس	shinks
Understand	غربك	gharbak
Laugh	يظحوك	yadthahok
Clean it	رحظه	rahadtha
Throw it away	رده	ardah
Place it above	طرحه حقلا	tarah haghala
He flies	يفرور	yafaroor
Vomit	يقيوي	yakeewee
To taste (examine)	طامه	tām

Sentences.

It is of no use	يجوز لع	yajoz la
Do	ينوفع لع	yanofa la
Where are you going	الهويحوم	alho eehom
Man dead is put in the grave	غيچ موت نحما الهال قوبر	qaij mot naham alhal gobar
The man said you struck me	غيچ عمور هت البود كي	qāij amoor hat al bōdā-kee
And the other said I did not strike you	واذاك عمور هو البود كه لع	ō dthick amoor ho albo-dak ala
I want to swim	حوم السبح	hom al sabaha
Do not fear	افزفك لع	fazakala
Who loves me I love him	هال ذ يا جوبي اجوب به	hal dthe ajobbee ajo-bah
What you wish I wish	الحال تحوم هو احوم	al hal tahom ho ahom
What are you doing	يبوه تعمول	yaboh tamol
In the house	بابيت	ba bet
All are good	كلهم جياد	koolhom jeeat
The people say	غتير كهابو	ghateer kahaboo
Vicinity of a well	شتربر	ishthareer
In the house	برك بيت	barik bet
First day of the moon or month	هيوم ذ اورخ	hēom da warrakh

Good morning	صبحكح	sabakah
The brain of the head. ...	دماغ ذحروه	damagh d heroh
A place where there is no water or people (desert)	قا به حموه الع وقع به هبو الع	kabee hamoo ala o kabee habo ala
I cannot do this.....	قوذ رالعمله الع	kaodar alamalah la
Like a bird.....	غروي ذالطير	gharo dtha tár
Take the money and give it to the Shaikh.....	ظوط داريهم و ازامسن دوله	dthot dariam o azamsin dawalt
What news from the place?	شي خبور من مكان ...	she khabar min makan
What do you say?.....	يا به تغتوري	yāboh taghatoree
You say what?.....	تا عمور يا به	tamoor yāboh
He is dead or living?....	متوت والا حيوت	mātoot walla héoot
Every thing is ready.....	كله نوجز	kalah nojas
The boat is going to load with dharah.....	سنبوق جهام يشلول عيش	sanbook jahan yashal al ysh
It tastes bad (dharah)....	طامه يغموم	tama yaghamon
It tastes good.....	طامه حجيد	tama hajeed
Look at the red clouds...	غلا عفور عوفر	ghalla afoor aufar
What does the Shaikh say?.....	ايبه عمور دولت	eaboh tamoor daulat
Where do you live now?..	هوه تحلول لعصومه ..	hoh taholol asomah

An experienced eye, on carefully reading over the above vocabulary, will at once observe the nature of the inaccuracies in the Mahrah's Arabic spelling. For instance, the pronominal affix ك is frequently added to names of parts of the body or any thing directly relating to man; ا, is also frequently substituted for the article ال, and often introduced when its vowel-sound would be sufficient &c. But these and other similar errors are of no great consequence, since they are easily detected, and cannot alter the radical spelling of the words, which are presented to the reader as the Mahrah wrote them. That the vocabulary therefore is perfect, I by no means wish to assert, but that so far as it goes, when the opportunity offered, an attempt to procure a little of the Mahrah language has not been wholly overlooked.

Remarks on the preceding Vocabulary by the Secretary.

This vocabulary of Mahrah words, though limited and imperfect, is the first attempt to collect facts from which we may trace the affinities of the language, cognate with the primitive Syrian or *Aramæan*, the Hebrew, and the current dialect of Northern Arabia. M. Fresnel, in the Journal of the Asiatic Society of Paris,* has given the grammatical principles peculiar to the *Mahri*, but withholds in a great measure the Philological evidence of words on which he has founded his conclusions. The present may be the ground work however for further extended investigation into this interesting dialect of Southern Arabia, termed by the inhabitants themselves the *Ekhkili idiom*, and by the people of *Hejaz*, or Northern Arabia, the *Mahri*. It is more commonly known however to learned Arabs under the name of *Hamyari*, and becomes more peculiarly an object of curiosity, connected, as it is supposed to be, with the idiom of the Hamyaric Inscriptions, the decypherment and reading of which may be said to extend, at present, little beyond a knowledge of their alphabet; and which from some recent examples appears to have been written alternately from left to right, and from right to left, like the writing of the Greeks, called Βουστροφηδόν. The Geographer El-Edrisi, speaking of the *Curia Muria* islands, on the coast of Southern Arabia, says, "as to the islands of *Khartan* and *Martan*, of which we have already made mention, they are situated in the *Gulf of Herbs*, and are dependencies of the country of *Shajr*, where grows the Frankincense. They are in a flourishing state, inhabited by an Arab people, who dwell and live here, and who speak the language of the people of *Ad*, which is ancient and unknown to the Arabs of our day.†"—Masudi also somewhat earlier, in his "Meadows of Gold and Mines of Jewels," speaking of the country of *Shihr*, in Southern Arabia, says, "The inhabitants, who are of the tribe of *Kozaah-bin-Malik-bin-Hamyar*, and are called *Mahrah*, speak a language quite different from that of the Arabs; as they constantly use the letter *Sin* instead of *Kaf*.‡

* Journal Asiatique, troisieme serie, Tome VI. Decembre 1838, p. 529.

† Geographie D'Edrisi traduite de l'Arabe en Francais par M. P. Amedee Jaubert, Tome Premier p. 48.

‡ Masudi under the section of his work, giving an account of the different seas, and the nations on their shores.

The Southern Arabs establish a distinction between the dialect of the *Garas* and that of the *Mahras*, asserting that the former contains a much less proportion of modern Arabic than the latter; so that an inhabitant of the coast of *Shihr* شحر, who knew no other Arabic than that of his own proper dialect, would be unable to comprehend the language of the people of *Shajr* شجر, who are the Garas occupying the Sabhan mountains and the coast from Cape *Shajr S. W.* to *Marbat* and *Hasek N. E.* These dialects of the two tribes are but idioms however of the same language, in which are found many Hebrew words not met with in Arabic; and both are perhaps, as Fresnel supposes, the elder sisters of the former. The proper appellation of the original idiom among the Garas is the *Ehhkili*, spoken at *Marbat* and *Zafar*, and throughout the district of *Shajr*: the Geographical limits of which, as we shall immediately notice, have been confounded with those of *Shihr*, or the maritime part of *Hazramaut*, chiefly occupied by *Mahras*, descended as would appear from the more ancient and orginal tribe of *Garas*.

It is principally in the country of *Shihr* that those Hamyaric Inscriptions are to be found, which were first brought to light by Officers of the Indian Navy, and which have latterly attracted so much learned attention from those cultivating a knowledge of the Semitic languages. A now desolate Fort on the sea shore,* in lat: 14° 38′ 30″ N. Longitude 49° 27′ 35″ E. seems to have given name to this tract of country, which corresponds as nearly as may be with the maritime part of Hazramaut; and is distinguished from that of *Shajr, N. E.* called after the Cape of this name, situated between *Ras-Fartak* and *Marbat*. The latter is called by Abulfeda *Sewahil Zafar*, or the coast of *Zafar*, or *Dhafar*, an ancient city of this quarter, of which the ruins are now called *El-Balad*, or the town *par-excellence*. It has been frequently confounded with the inland town of the same name† belonging to the *Sapphorite*,

* Abulfeda, in the preface to the Takwim-al-Baldan, says that between *Shihr* and *Hazramaut* is only a distance of four days.

† Monsieur Fresnel, in his fourth letter on the history of the Arabs previous to the period of Islamism, *Journal Asiatique Juin* 1838, maintains that the ruined town, now called El-Balad, on the coast of Marbat, is the ancient *Zafar*, which was the capital of the Hamyaric Kings; but in this opinion he is certainly in error, as the Sephar of Genesis, is in the territory of *Jahssah*, a

but which has been satisfactorily identified by Niebuhr with a site, where are some Hamyaric Inscriptions, about two and half German miles *S: S: E:* of Jerim, in lat: 14° 17'.—This identification places the original seats of the *Homerite*, or tribe of Hamyar, much further to the westward than the maritime district of *Shihr*, where those Inscriptions have hitherto been chiefly found; and would lead to the inference that the maritime *Zafar*, was the capital of the *Aseite*, mentioned both by Ptolemy and Pliny, as situated in the neighbourhood of the sea near *Cape Syagros*, which corresponds with Ras-Shajr. The *Aseitæ* may have been named from being situated on the *Jun-al-Hashish*, or the Gulf-of-herbs, which is the Arabic name for the Bay in which *Kharfan* and *Mirfan* lie; and though we cannot venture to assert that the name was only another appellation for the *Gerræ*, a poor people who originally fled from Chaldea to Arabia,* there is strong presumptive evidence that the modern *Gara*, whose language has so many affinities common with the Syriac and Hebrew, are descendants and remains of this ancient colony.—The most remarkable of these affinities can be best shewn in the following table, in which the Mahra dialect, is compared with that of Socotra, an undoubted derivative of the Ghiz or Ethiopic.

The two districts of *Shihr* and *Shajr* are but the maritime boundaries of the country properly known, by the name of *Mahra*, which is an extensive central desert, composed chiefly of moveable sands, interspersed with hilly tracts.—The length and breadth of this dry and barren

district of Arabia between the Red Sea and Sanaa, and not on the Indian ocean, as must be assumed by Monsieur Fresnel's identification. It is true that Abulfeda and Masudi only make mention of the *maritime Zafar*; but the absence of their testimony to their being a more ancient and inland town of the same name is no decided negative to the faithfulness of Neibuhr's identification, which is thus confirmed by the words of Edrisis' Geography—"Dhafar is the capital district of Jahseth. It was formerly one of the most considerable and celebrated villages. The Kings of Yeman had here their residence, and here is to be seen the palace of Zeidan. These buildings are now in ruins and the population much reduced. The inhabitants have however preserved some remains of their ancient wealth, and possess cultivated fields and date trees in sufficient number for the supply of their wants." A very full account of the ruins and present state of El-Balad, or the maritime Zafar near Murbat, by Dr. Carter, has been published in the Transactions of the Bombay Geographical Society for 1844.

* Strabo, Book XVI. page 766.

waste, has never been accurately ascertained either in ancient or modern times, though the Arab Geographers tell us that it is nearly nine hundred miles in length, and from fifteen to twenty-five miles in breadth.—Its greatest extent would appear to lie from the eastern portion of Arabia, near Ras-al-Had, to the mountain districts in the neighbourhood of Mekka. The following is the account of it by *Edrisi*: "The country of *Shajr*, inhabited by the Arabs of *Mahra*, who are of an unmixed race, adjoins that of *Hazramaut*. The camels which are produced here are unequalled for swiftness. It is reported also that with very little care they can be brought to understand whatever you wish them. They have names given them by which they are called; and they come to tender their obedience without hesitation. The principal fort of *Mahra* is *Shajr*. The language of the inhabitants is so corrupted that it is difficult to understand them; it is the ancient *Himyaric*. This country is very poor. The only resources of the inhabitants consist in the transport of merchandise, and in the traffick of goats and camels. They feed their cattle on a species of fish known under the name of *wark*, which is caught in the sea of Oman, and which they give to their cattle after exposing it to dry in the sun. The people of *Mahra* are unacquainted with either corn or bread. They live on fish, dates, and milk, and drink but little water; they are so accustomed to this diet, that when they go into the neighbouring countries, and have to eat either bread or farinaceous food, they are made uncomfortable, and are sometimes seriously ill. It is said that the whole length of the country of *Mahra* is 900 miles, and its breath from 15 to 25 miles. It is composed entirely of moveable sands; and from the extremity of the country of *Shajr* to *Aden* is reckoned a distance of 300 miles."* Baron Wrede during an excursion in Hazramaut reached the borders of this desert after a 6 hours' journey to the N. W. from *Seiwa* in the Wadi Rachie. He describes it as an immense sandy plain, strewed with numberless undulating hills, which give it the appearance of a moving sea, without a single trace of vegetation to animate the vast expanse. †

* Recueil de voyages et de memoires publié par la Société de Geographie, de Paris, Tome cinquieme feuillet 150.

† Baron Wrede's excursion in Hazramaut, in the Journal of the Royal Geographical Society, vol XIV p. 110.

The following are a few of the Mahri words compared with Socotran and Hebrew.

English.	Mahari.	Socotran.	Hebrew or Chaldee.
Back	Dhara mothan	tadah	jaof
Belly	djof		jofah
Cow	bakarót		bakar
Donkey	heir		zaher
Eyebrow	shajor	haj-har	jaboth
Fire	sheewot	sheiwat	eshūata
Father	beb		ab
Four	robot		raba
Fish	seit	sodah	
Frog	dthafzót		zafreda
God or Master	balee		baal
Hair	shof	shif	
Here	boh		pah
Ibex	waal		kel
Knee	barak		berek
Lofty	rahak		rahak
Lizard	dthob		zab
Milk	ishakhof	huf	
Month	warakh		yerah
Moon	wareet		yerah
Net (cart)	maghweer		mager
Nose	nakhrir	nahir	af
Nine	iset	saah	thisath
Red	nafar	nafir	
Rice	hiraz	arhaz	
Rope	keiood	ket	
Six	yiteet	yitah	
Sword	shakee	ashko	
Sun	heiom	shohom	
Stars	kabkob	kokab	
Two	tharo	tarawa	
Ten	ashareet		ashareth
White	allabōn	lebhem	laban

Before the Koran had fixed the Koraish dialect of the Arabic language, the several vernacular idioms spoken in the Arabian peninsula, and in the plains between Syria and Mesopotamia, were indiscriminately used

in the earliest verses of Arabic poetry, called *rajaz* [illegible] riety of words and expressions they contain, were t[illegible] study among the Arabic philologers and grammaria[illegible] the Hamyaric, spoken by the descendants of Kahtan [illegible] rally to have approached nearer the purity of the [illegible] dialect of the Koraish; and the great number of He[illegible] words found in the *Mahri*, seems to support the trut[illegible] is also confirmed by Masudi, who makes Kahtan, [illegible] cended from *Arfakhshad* and to speak *Suryani;* an[illegible] the son of Kahtan spoke another language that diffe[illegible] and was as some think the Hamyaric dialect of Arabic, [illegible] consider the *Garawi* and the *Mahri* to be remains, corrupted indeed by an admixture of Indian and even Greek words; which, if not borrowed directly from their original countries, were obtained from the inhabitants of Dioscoridis, or Socotra, whose inhabitants were in the time of Arrian's Periplus* a mixed race of Arabs, Indians, and Greeks.

One can scarcely fail to notice the similarity of the Mahri *ojbak*, (love) and the Greek term αγαπη though the former be disguised by the additional *k* which is the pronominal Arabic affix of the second person; nor can we be deceived in concluding that مغور *afaor*, from अभ्र *abhr* a cloud, and منعشى *maanash* the Arabic noun of place, formed from नाश *nash* (annihilation), are evident Sanskrit derivatives. The Mahri terms for *heaven* and *hell* are also of Indian origin; the Arabic *dthal*, or Sanskrit स्थल *sthal*, (place) when compounded with the article *al* and *kheir*, (goodness) being the appellation for heaven, or the place of the good; while *dthal-al sheeot*, signifying the place of fire, stands as the denomination for hell. But we shall not now pursue these interesting affinities of Mahri, which would require for their complete elucidation a more extensive vocabulary of the dialect than the one now given, and more ample illustrations of the grammatical principles common to this language, the Syriac, and the Hebrew, by one intimately acquainted with these three. There is enough, however, to excite interest and encourage further research.

J. B.

* Arriani Periplus Maris Erythræi in editione Geographiæ veteris, Oxoniæ vol: I f: 17.

FAC-SIMILE OF THE SAMANGARH COPPER-PLATE GRANT.

[illegible]

FAC-SIMILE OF THE SAMANGARH COPPER-PLATE GRANT.

[illegible]

FAC-SIMILE OF THE SAMANGADH COPPER-PLATE GRANT

ARTICLE II.—*A Sanskrit Copper Plate Inscription, found in the Fort of Samangarh, in the Kolapur country, dated Shaka 675 (753 A. D.) and translated into English.* By the late Ball Gungadhur Shastree.

May he (Vishnu), whose lotus-navel Brahma has made his seat, preserve you, as well as Hara (Shiva), whose head is adorned by a handsome phase of the moon. There lived a virtuous king, named *Govind Raja*, who, being always foremost in battle, and destroying his enemies with his uplifted sword, as the sun's orb removes the darkness prevailing in the night, became known by the title of the lion of kings, in the remotest quarters of the earth. Whenever he perceived an army in front, he biting his lips, and with eye-brows bent up, loudly laughed (at his enemies) in battle, relying upon his scimitar, (the nobility of) his family, his heart, and his spirit. No sooner he lifted up his scimitar, or even his name was mentioned, than grace, honour, and spirit, unseasonably departed from his enemies and at once. His son, *Kaka Raja*, shone in the family like a gem; supporting, like Hari (Vishnu,) a high character for relieving the distresses of the oppressed, and returning evil for evil, though grateful for the favours he received from others. While he was ruling over the earth, the tame peacocks cackled every evening for joy, mistaking for clouds the summits of palaces, smutted by the volumes of smoke proceeding from the sacrifices of the twice-born. These pacific Brâhmans, in the practice of their devotions, sprinkled so much sacred water that people had to pass through ankle-deep liquid. To him was born a son, named *Indra Raja*, the region of whose shoulders was scratched by contact with the teeth of elephants, whose gaping temples emitted a copious stream of temporal juice. He supported Râstra Kûtâ, as the golden mountain (supports the earth), and protected the world, destroying all his enemies. His queen who, like moon-light, complying with the desires (of supplicants) and removing the gloom (of poverty), was descended on her mother's side from the lunar race, and on her father's side from the Shalukya (Chalukya) race, in respect to the affording of protection and maintenance without reference to the service performed by the people, she attained an exalted rank among the ornaments of her sex. The good king *Indra Raja* had by her a virtuous son, as a recompense

for the protection afforded by him to this earth. The world being deprived of the splendour of *Indra Raja's* glory, Shri *Danti Durga Raja* assumed the functions of the sun to his lotus-like family. The elephants of his enemies, terrified in battle, as at the sight of a lion, fled away, pulling up their picketing-posts by the roots; and no body knew what became of them. The turreted castles of his enemies fell with their spirits, unable to bear the heat of his prowess and his wrath. Men perceived with astonishment the demolition of the steep banks of the great river Rèva (Narbudda), effected by his victorious elephants. His filial affection was demonstrated in the grants of land made by his mother in four hundred thousand villages. He obtained the title of the king of kings and great lord (of the earth), by subduing Vallabha without any effort, such as that of wielding weapons and sending armies, but merely by the torsion of his brow. He defeated with a few of his followers the whole army of the Karnàtaka, which had been renowned for the humiliation of Sriharsha, the king of Kánchi, Kerala, Chola, and Pàndya. This *Danti Durga Raja*, the lord of the earth, &c. commands all provincial and district chiefs, and heads of villages in their respective capacities, to take notice as follows:

In the Shaka year 675 corresponding to Samvat 811,* on the 7th of Magha, called Ratha Saptami, we, being desirous of securing virtue and fame to our parents and ourselves, have granted, by formally pouring water, the village of Dèulvat, situated in the district of Koppar, to Narayan Bhatta, of Vasishta Gotra, inhabitant of Karahàtaka, the grandson of Trivikram Bhatta, and the son of Krishna Bhatta, eminently skilled in the Vedas and their subdivisions. This small gift of land is made for the promotion of the Agnihotra and other sacrifices. It is not to be entered into by the military and other officers of Government, or by any evil-disposed persons; but should always be protected and relieved from oppression by all future kings, whether belonging to the family or not. To the east of the said village lies new Tyalavalhi; to the south Paragopagráma, belonging to the Brahmans; to the west, Higgur-vade; and to the south, Artavatagrama. The village, bounded as above, has been given away altogether with all its revenues, arising from vegetables or minerals, or from fines, taxes, and other sources. May it receive invariable protection while being cultivated by the Brahman himself, or by others for his use and profit. As said by Bhagwan Vyas, he who

* The mention of these two dates is not uncommon in the grants of Southern India, according to Mr. Walter Elliott, See R. Asiatic Society's Journal, No. VIII 1837 p. 2.

resumes a grant of land, made either by himself or by another, becomes a worm in filth for sixty thousand years. This mandate, illustrating the great fame of *Danti Durga*, has been written under the order of that monarch, presiding in the assembly of great kings, by Indra, who, not elated by prosperity, was always willing to do the great duty of conferring obligations upon others and of promoting their advantage.

Remarks by the Translator.

The Rája, whose grant is commemorated in the preceding Inscription, is mentioned in the 1st line of the 2nd Plate, as one of the sovereigns of Râshtra Kûta; with whose name, as a separate and important family, we first became acquainted on the publication of the Karda or Kardla and Van-Dindori grants in the Royal Asiatic Society's Journal, and on whose history some further light has recently been thrown by the Kherepâtan grant, which the Bombay Branch of the Royal Asiatic Society did me the honour to publish, in the Vth No. of its Journal.* The Van-Dindori grant, which is the oldest of these three, is dated Shaka year 730 (A. D. 808); but the other two, being richer in giving the genealogy of their heroes, begin with Danti Durga, the predecessor of Krishna Rája, whose name is the first mentioned in the Van-Dindori grant, and who, according to that authority, wrested the sovereign power, for a time, from the hands of the Châlukyas. The present Inscription being 55 years older than this last named grant, supplies the date of Dantî Durga's reign, which is 675 Shaka year (A. D. 753). As I have shewn on a former occasion how the three abovementioned grants confirm one another in their most important points, I shall only remark in this place, that the present copper plate is not an unimportant addition to the series of documents, which have already been discovered in relation to the Yâdavas of Râshtra Kûta. In addition to Danti Durga's date, it furnishes us with the names of three of his predecessors; viz. *Indra Raja*, *Kaka Raja*, and *Govind Raja*, the last of whom must have reigned towards the end of the 7th century of Christ, taking 25 years as the ordinary average duration of each reign.

The character † in which the Plates are engraved, does not differ

* See Nos. V. and X.

† The following well known letters, belonging to the ancient cave Alphabet, may be noticed in the accompanying inscriptions, ञ्ञ for ज्ञ; ऊ for ङ; ण्ण for ण; ट्ट for ष्ट; ठ्ठ for ष्ठ; ट्ठ for ष्ठ; ठ्ठ for ष्ठ; ट्ठ for ष्ठ; ठ्ठ for ष्ठ; ट्ठ for ष्ठ

much from that assigned by Mr. Prinsep to the 8th century of the Christian era; and from a note of Mr. Wathen's at the end of the Van Dindori Inscription, the resemblance between it and the modern Deva Nagari is not less striking.—The Cave character may have been in use in almost all its purity, as supposed by some, at the period under consideration; but from the evidence of the Valabhi plates* dated 328 A. D. and a mass of other Inscriptions, it is very certain that a modification of it was introduced into many parts of the Dekhan at a very remote period.

As Mr. Walter Elliott has not found any record of this family in the numerous collections which he made to the south of the Krishna, it is probable that its power never extended much beyond that river, notwithstanding the defeat of the Karnataka forces mentioned in the accompanying Inscription, and the excursions beyond the Tungabhadra adverted to in the Van Dindori grant. More extensive conquests were made by the Yadavas of Rāshtra Kūta towards Marwād and the Vindhya mountains. The Rāshtra Kūta family may hereafter be found to have some connexion with the Rattas, so frequently spoken of in the History of Rājasthan.

From the absence of the classical surname (the Yadavas) of this family, both in the accompanying and the Van-Dindori grant, we may suppose that it was not assumed by those who laid the foundation of its greatness. That the power of the Rāshtra Kūta family was in its infancy, in the days of Dauti Durga, may also, to a certain extent, be inferred from the language of the accompanying grant, which is not only extremely simple but incorrect and unidiomatic in many places; showing that his Court was not yet adorned by poets or engravers of any eminence.

The seal obviously bears Shiva's image with a crescent and a snake.

The only other circumstance worthy of notice is the descent of Dauti Durga's mother from the family of the Chālukyas, the opponents of the kings of Rāshtra Kūta.

The Brahman to whom the grant is made, is said to be an inhabitant of Karhātaka, (Karada or Kurar,) on the banks of the Krishna. The village assigned to him, as well as those places referred to as its boundaries, are all to be found in the neighbourhood of Kolapur; but I am not able just now to ascertain the precise locality of the gift. †

4th May 1846. BALL G. SHASTREE.

* Bengal Asiatic Society's Journal for September, 1835.

† The Copper-plate grants belonging to this family, and their predecessors the *Chālukyas*, are of much interest and importance in their relation to the history of the Jaina religion.—*Jina Sena Acharya*, the author of the Jaina Puranas, is said to have been the Guru, or spiritual preceptor of *Amoghavarsha*, a Jain prince, of the Arcot district in the end of the ninth century, (*Wilson's Mackenzie Collection Vol.* I *pre. p.* xxxii) who appears to be the same as the *Amoghavarsha* II of the Khaspatan grant, published in our Journal Vol. I p. 209.—*Editor.*

Transcript of the Plate in Modern Devanagari.

स्वस्तिसवोऽप्याद्वेधसाधामयन्नाभिकमलंकृतं ।हरश्चयस्यकान्तेन्दुकलया
कमलंकृतं ॥ आसीद्विपत्तिमिरमुद्यतमण्डलाग्रोध्वस्तीस्तिन्नयन्नभिमु
खोरणशर्व्वरीषु । भूयः शुचिर्व्विजयिताप्तदिगन्तकीर्तिगोविन्दराजइति
राजसुराजसिंहः ॥ दृष्ट्वाचमूमभिमुखांसुभटाट्टहासमुन्नामितंसपदि
येनरणेषुनित्यं । दष्टाधरेणदधताभृकुटींललाटेखड्गंकुलंचहृदयंच
निजंचसत्वं ॥ खड्गकराग्राश्रयतश्चशोभामानोमनस्तत्सममेवयस्य । म
हाहवेनामनिशम्यसद्यस्त्रयंरिपूणांविगलत्प्रकाण्डे ॥ तस्यात्मजोजा
गृतदीर्घकीर्त्तिरार्त्तार्त्तहारिहरिविश्रुतधामधारी । भूयः सृतिष्व
पकृतानुकृतिः कतज्ञः श्रीकक्कराजइतिगोत्रमणिर्बभूव ॥ यस्मिन्प्रशास
तिमहीन्नरपोद्विजानांवैतानधूमनिवहैः परिकर्षराणि।संध्यासुसौधशिख
राणिविलोक्यकेकाः कुर्वंतिवेश्मशिखिनोजलदागमोत्काः ॥ यस्यद्विजा
जनाः शांताःशांतिवाचन वारिणा । प्रत्यहगुंल्फदघ्नेनजनश्चरतिमंदि
रे ॥ तस्यप्रभिन्नकरटच्युतदानदन्तिदन्तप्रहाररुचिरोल्लिखितां
सपीठःक्ष्मापःक्षितौक्षपितशत्रुरभूत्तनूजःसद्राष्ट्रकूटकनकाद्रिरिवेन्द्रराजः।
पूरिताशाशुचिर्ध्वस्तावृत्तिर्ज्योत्स्नेवमातृतः ।राज्ञीसोमान्वयीतस्यपितृतश्च-
शलुक्यजा ॥
श्रीमद्युवतिगणानांसाध्वीनामापनापदं।रक्षणेभरणेलोकपारिचारनिरापदं।
सनयंतनयंतस्यासलेभेभूभृदुत्तमः । नीताववेमिवाशेषजगतःपालितायति॥
ध्वस्ततेजसिधामोघप्रक्ष्वेलितदिगन्तरे । श्रीदन्तिदुर्ग्गराजस्यस्वकुलांभोज
भास्करः॥
यस्याजौराजसिंहस्यवित्रस्तावैरिवारणाः । सलज्जास्तंभमुन्मूल्यज्ञायंते-
क्वापिनोगताः
॥ साट्टालकानिदुर्ग्गाणिहृदयैःसहविद्विषां। पतन्तियत्प्रतापोग्रकोपां
कुरसमुद्गकैः ॥ महीमहानदीरेवारोधोभित्तिविदारणं । लोकाविलोकय
न्त्युच्चैः कृतंयज्जयकुंजरैः ॥ मातृभक्तिःप्रतिग्रामंग्रामलक्षचतुष्टये ।ददत्या
भूप्रदानानियस्यमात्राप्रकाशिता ॥ सभ्रूविभेदमगृहीतविधौतशस्त्रमज्ञात
मप्रणिहितांत्रमपेतयत्नात् ॥ योवल्लभंसपदिदंडलकेनाजित्वाराजाधिरा
जरमेश्वरतामुपैति ॥ कांचीशकेरलनराधिपचोलपांड्यश्रीहर्षवज्रटवि

भेदविधानदक्षं । कर्णाटकंबलमनंतमजेयरथ्यैर्भृत्यैःकियद्भिरपियः
सहसाजिगाय । सचपृथिवीवल्लभमहाराजाधिराजपरमेश्वरपरम
भट्टारकखड्गाधारार्कश्रीदांतिदुर्ग्गाराजदेवःसर्वानेवराष्ट्रपतिविष
यपतिग्रामकूटांयथार्हंप्रतिपत्याज्ञापयत्यस्तुवःसंविदितंयथा
पंचसप्तत्यधिकशककालसंवत्सरशतषट्ककेव्यतीतेसंवत् ८११ पोह
रिकायांमाघमासरथसप्तम्यांतुलापुरुषस्थितेमातापित्रोरा
त्मनश्चपुण्ययशोभिवृद्ध्यर्थंकोप्परपंचशतभुक्त्यन्तर्गतकरं
दिपदेजफितदेउळवाटनामग्रामःकरहाटकवास्तव्यःबह्वृचस
ब्रह्मधारिणेवसिष्ठगोत्रायभट्टविविक्रमपौत्रायकृष्णभट्टपुत्रनाराय
णभट्टायवेदवेदांगपारगायअग्निहोत्रबलिचरुप्रवर्तननिमित्तं
भूयछिद्रन्यायेनउदकपूर्वोदत्तःसचाचाटभटप्रवेश्यःअ
सन्नरप्रवृत्तिविनिवृत्ताचारःसर्वाबाधापरिहारेणास्मद्वंश्यै
रन्यैर्वाप्रतिपालनीयोनृपतिभिःयस्यचपूर्वतःनवात्यलेव
ल्हीग्रामःदक्षिणतःपारगोवाब्राह्मणग्रामःपश्चिमतःहिगुर्वाडे
ग्रामःउत्तरतःअद्दतवाटग्रामःएवंचतुराघाटलक्षितोग्रामःसवृ
क्षमूलकुलस्वसीमापर्यंतसिध्यादिहिरण्यायःसदंडदोषदसा
पराधयथासमवित्तभागभागकरसर्वोत्पत्यादिसहितोदत्तः
अस्यभुंजतभुंजनायतस्यकृषतःकर्षापयतस्यधारकेनचित्परिर
क्षनाकार्या॥उक्तंभगवत्ताव्यासेन।स्वदत्तांपरदत्तांवायोहरेतव
सुंधरां । षष्टिंवर्षसहस्राणिविष्टायांजायतेकृमिः ।। यःसं
पद्भिरनुत्तप्तःपरहितव्यासंगिनोनीयस्यधीः । यस्तत्राप्युपकर्तुमि
च्छतिमहत्धर्मस्यकाष्ठाधने । तेनेन्द्रेणनरेन्द्रवृन्दसहितश्रीद
न्तिवर्माज्ञयाप्रीत्येदंलिखितंतदुन्नतयशःप्रोद्भासनंशासनं ॥

1.

6.

2.

7.

3.

8.

4.

9.

5.

10.

H.I.C. del. et lith.

Hampstead Brett.

ARTICLE III.—*Some remarks on specimens of Saurashtra Coins, lately found at the village of Shirawl, near Junir*
By the Rev. John Stevenson D. D.

To H. J. Carter, Esq.

Officiating Secretary of the Asiatic Society.

MY DEAR SIR,—At Dr. Bird's desire I have the pleasure of sending you the accompanying specimens of the coins of the Regal Satraps of Saurashtra, found near Junir in August last to the number of 400, that you may have fac-similes of them taken for the Journal of the Society. I shall number them according to Mr. Prinsep's system, not disturbing his figures, but by the sign +, shewing which of the names in his list the one in question should, I suppose, precede.

The most ancient of our coins, I mark + 1, as it is a new one, and precedes I conceive the whole of Mr. Prinsep's series.* It bears the following legend on the obverse:

Rájna Mahakshatrapasa Iswaradattasa [Bala] Putrasa.

The letters in this legend are well formed, and all very distinct except the two corresponding to the word put in brackets, and of which there may be some doubt. There is no doubt however of the name of the father occupying this place, and that he was a mere private individual. There are rudiments of a date and of Greek letters, as is usual in these coins, circling a bold and well executed head, but all too indistinct to furnish any clue to their import. It would seem that this sovereign had been commissioned to exercise a delegated royalty in Western India, but did not transmit his authority to any one of his family, as none of his descendants appear in the list of Royal Satraps.

1. The next is number 1 of Prinsep's list.

The legend on the obverse is,

Rájna Kshatra[pasa Rudra] Sahasa Swami Jina Dáma Putrasa.

The name indeed of the Raja is blotted out, but that of the father in this instance is sufficient to mark it out as the coin in question. The remarkable thing in this coin however is, the distinctness of the Greek let-

* No 3 of Plate xxiv.

ters around the face, and which as nearly as I can transcribe them are as foows:

A I O λ V I I I V I ι ι. The first eight of these letters, I read Διολυπις. The last with the two fragments I suppose belong to a new word, of which too little remains to found any conjecture upon. If I am right in reference to the first word, it will be a tolerable translation into Greek of *Rudra*, or even of *Rudra Saha*, supposing *Dio* as in Dionysius &c. to be the name of Jupiter, and the other element meaning, like Rudra, the causer of grief.

2. The legend on the observe of this coin, belonging to No 2 of Prinsep's sovereigns, is entire and as follows:

Râjna Kshatrapasa Aça Dâmna Râjna Kshatrapasa Rudra Saha Putrasa.

This sovereign was the son of the preceding. It is remarkable in his coins that the execution is altogether inferior to the preceding, and to one or two that follow in the series. There are rudiments of a date just behind the head, but none of Greek letters.

4. The fourth coin in our collection is that of *Vijaya*. Of his father *Dâma Saha*, no coins have yet been found. The legend on this coin is not very distinct in some places, but enough of it remains to remove all doubt. It is,

Râjna Maha Kshatrapasa Vijaya Sahasa Râjna Maha Kshatrapasa Dâma Saha Putrasa.

Behind the head, the following old numerals are to be read ꟼꟼꟻ which probably mean 314.

+ 5. This is a new coin. Besides the silver coin accompanying, I have a bronze one of the same monarch on which the name is quite distinct, though the father's is obliterated. On this coin the name is obscure in the letters XE [गज]. The legend is,

Râjna Kshatrapasa Dâmajatasriyah Râjna Maha Kshatrapasa Dama Saha Putrasa.

The name is thus written ꟼXE ꟼꟼω: and in the Nominative case will be,

Dámajaṭa Śrik.

Of Prinsep's No 5, no coins are in my possession.

6. Is a coin of the great

Rudra Saha.

The legend is

Rájna Mahakshatrapasa Rudra Sahasa Rajna Mahakshatrapasa Vira Dámna Putrasa.

Behind the head are the numbers ૧૦૩ which without much doubt mean 381; or if not, 385.

7. This coin was struck by a brother of the last named sovereign. The legend is partly defaced, but enough remains to identify it. It is

Rájna Kshatrapasa Visva [Sahasa Rajna Maha Kshatrapasa Vira] Dámna Putrasa.

+8. This is also a new coin. The legend of which is

Rájna Kshatrapasa Visva Sahasa Rájna Maha Kshatrapasa Rudra Saha Putrasa.

This sovereign was therefore a nephew of the last mentioned king, and brother to No. + 8 of Mr. Prinsep's list. The letters are very distinct, and this sovereign is not to be confounded with his predecessor or successor of the same name.

9. I take this to be a coin of Mr. Prinsep's *Atri Dáma*: the reading on our coin however is clearly Bhatri Dáma, and Mr. Prinsep mentions this name as that of the father of the next in the series at p. 355 of the Asiatic Journal vol. VII. The two letters ત્ર and ત્ર are so like that they might easily have been confounded. The inscription is

Rájna Maha Kshatrapasa Bhatri Dámna Rájna Maha Kshatrapasa Rudra Saha Putrasa.

10. This is the last coin in our series, and has inscribed on it

[*Rájna Maha Kshatrapasa*] *Visva Sahasa Rájna Maha Kshatrapasa Bhatri Dámna Putrasa.*

No coin of a later date than this last has been found at Junir, and most likely the collection of coins was made in the reign of this monarch. The principal historic fact of interest brought to light by this discovery is, that the country as far as Junir was governed by rulers, who were either at that time dependent on or had previously owned allegiance to the Grecian monarchs of Bactria; as we could not otherwise account for the current money of the realm bearing an inscription in Greek letters. The subjection, however, may in later times have been merely nominal. I think also we are quite warranted to infer that the art of coining metal was borrowed from the Greeks. The oldest coins, when we may suppose the Grecian connection to have been the closest, are well executed, and the more modern are of a much inferior type. The art of coining decayed with the decay of the Grecian connection. Let patriotic Hindus consider the lesson such a fact teaches.

I remain, Dear Sir, yours very faithfully,

Bombay, 10th March, 1847. J. STEVENSON.

ARTICLE IV.—*A description of the Frankincense Tree of Arabia, with remarks on the Misplacement of the "Libanophorous Region" in Ptolemy's Geography.* By Assistant Surgeon H. J. Carter, Bombay Establishment.

There is something peculiarly interesting in the history of the "Frankincense Tree," from the frequent allusions made to it in the Holy Scriptures. From the earliest periods of the Jewish history, its produce has formed one of the ingredients in their offerings of incense, and it still forms the "sweet perfume" of our catholic churches at the present day.

Whether we consider the description of the Arabian Frankincense Tree in a botanical or in a geographical point of view, both are alike interesting, for the tree, though described, has I believe never been identified, and the exact limits of that part of Arabia to which it is indigenous, viz. the *Libanophorous Region* of Ptolemy, have never been clearly defined.

Boswellia Aurifera (Colebr.)

They were subjects of much interest to the ancients, but sought after with little success; even Kings may be enumerated among others, who have personally engaged themselves in endeavouring to obtain a faithful description of the Frankincense Tree, and in discovering that part of the peninsula of Arabia, to which it is exclusively indigenous. Antigonus had a branch of it purposely brought to him for his inspection; * the Ptolemies planted it in Egypt, and are said to have watched it with the greatest care; † King Juba wrote an account of it to C. Cæsar, the adopted son of Augustus; ‡ and the latter sent Ælius Gallus to Arabia, at the head of an army consisting of ten thousand Romans, besides Jews and Nabateans, there to discover "after the country of gold, that of the frankincense tree." This even did not succeed, for when Ælius Gallus was within two days march of the Frankincense region, his army became so distressed for want of water, that he was compelled to abandon his pursuit, and to make as sudden and hasty a retreat, as his advance appears to have been slow and deliberate.§

Theophrastus, after relating all he had collected on the subject, which is wonderfully correct so far as it goes, concludes by saying, "up to this time this is all we have learnt of it," meaning the Frankincense Tree.‖

Pliny, in the following extract from the quaint but faithful translation of Dr Holland, writes, "we have waged war in Arabia, and our Roman army have entered a great way into that country. C. Cæsar, the adopted son of Augustus, won great honour and glory from thence; and yet verily to my knowledge there was never any Latin Author that hath put down in writing the form and fashion of the tree that beareth incense.¶" From Pliny downwards, the subject appears to have excited less interest, and to have been almost wholly lost sight of, until the Danish Expedition to Arabia took place, when one of the "questions proposed by Michaelis to Niebuhr," was, "to determine the site and description of the Frankincense Tree."** It was however unanswered, for Niebuhr writes," We could learn nothing of the tree from which incense distils, and Mr Forskael does not mention it."††

* Theophrast. Hist. Plant. L. ix. c. iv. † Pliny Hist. Nat. L. xii c. xiv.
‡ Idem. § Strabo Exp. Ælius Gallus L. xvi. ‖ Theophrast. Op. cit.
¶ Pliny B. xii c. xiv. Eng. Trans. Holland. ** Niebuhr Descrip. de l'Arab. T. iv. Quest. xxix. French Trans. †† Niebuhr Op. cit.

Rumph * and Stackhouse † appear to have been acquainted with it, Roxburgh ‡ first described it, and Colebrooke § gave a drawing and an account of it in the Asiatic Researches, relating the manner in which Dr Turnbull, then Surgeon to the Residency at Nagpoor, satisfactorily identified the gum of the Indian Frankincense Tree, with that called Olibanum. The produce therefore is determined, and it only remained to identify, if possible, the Arabian species, with that described and figured by Roxburgh and Colebrooke. With this view, I made a sketch‖ of a branch in flower that was selected from many others which were brought to me on the 30th May 1846, at Rakheote, a small village close to Ras Sajar, on the southeast coast of Arabia, and as it appears to me to be identical with the Indian species, described and named by Roxburgh, *Boswellia serata*, I cannot do better, than add to it his description, and the accompanying observations of Mr. Colebrooke on the diversity in its fructification, almost all of which are in every way applicable to the Arabian tree.

Boswellia Serata. Roxb.

"Gen. Char. Calyx beneath, 5 toothed. Corol. 5 petaled. Nectary a crenulated, fleshy cup, surrounding the lower part of the germ, with stamens inserted on its outside. Capsule 3-sided, 3-celled, 3-valved. Seeds solitary membrane-winged.

"Spec. Char. Leaves pinnate, leaflets serate downy. Racemes simple, axillary. Petals ovate. Filaments inserted on the exterior margin of the nectary.

"A large tree, a native of the mountains of India. A most fragrant resin is collected from wounds in the bark, &c.

"Leaves crowded about the extremites of the branchlets, pinnate with a single terminal one.

"Leaflets sessile, sometimes opposite, sometimes alternate, in general about 10 pair oblong, obtuse, serate, villous; length about an inch or an inch and a half.

* Herbar. Amboin. Par. 1. L. iii. c. iii. † Ext. Bruc. p. 19. t. 3 Wight and Arnott. ‡ Flora. Ind. 2. p. 383. § As. Res. 2. p. 377. ‖ *Vide* fac-simile Plate xxiii.

"Petioles round, downy.

"Racemes axillary, simple, shorter than the leaves, downy.

"Bracts minute.

"Flowers numerous, very pale, pink, small.

"Calyx five lobed, downy. (Perianth 1-leaved 5-toothed) Corol. petals five oblong expanding, downy on the outside, and considerably longer than the stamens.

"Nectary a fleshy crenulated cup, (coloured and adhering to the calyx) surrounding the lower two thirds of the germ.

"Stamens: Filaments ten, alternately shorter, inserted on the outer edge of the mouth of the nectary. Anthers oblong.

"Pistil: Germ above, ovate. Style cylindric, stigma of three pretty large lobes.

"Pericarp: Capsule oblong, three sided, three celled, three-valved, size of an olive, smooth.

"Seed solitary, winged, broad, cordate at the base, deeply emarginate, point long and slender, and by it inserted into the apex of the valve of the capsule to which it belongs."*

Variations in the fructification, &c.

"The fructification is remarkably diversified on the same plant. I have found even on the same raceme, flowers in which the teeth or lobes of the calyx varied from 4 to 10. The number was generally 5, sometimes 6, rarely 7, more rarely 4, and very rarely 10. Petals as many as the divisions of the calyx; stamens twice as many; capsule generally 3-sided, sometimes 4, rarely 5-sided, with as many seeds and as many valves. Seeds generally solitary."† ‡

* As. Res. 9. p. 379. † Idem.

‡ Since this paper was presented to the Society I have to a certain extent been able to compare a specimen of the Frankincense Tree which I brought from Arabia, with the *Boswellia serata* now in the Horticultural Garden at Bombay: and, though I have no reason to doubt its genus, yet there are some points, in which it slightly differs from *B. serata* which I wish to notice, in case those better acquainted with both the Indian species than myself, may consider them sufficiently specific to entitle the Arabian tree to a separate denomination.

In the Arabian tree, the leaflets are oval, of a deep green colour, glossy and sparsely-pilose; (in both it and the specimen of *B. serata* mentioned, they are crenate-serated and wavy); they average six pairs, an inch in length, and with the confluence of the terminal leaflets amounting to double, and frequently

In addition to India, and that part of Arabia which I shall presently point out, the Frankincense Tree is found in great abundance in Eastern Africa, on the limestone mountains which extend westward from Cape Gardafui through the country of the Somalis; * I have seen a living specimen in foliage brought from thence, and large quantities of the gum which is imported at Makalla for re-exportation to India: both the produce and the tree of Africa and Arabia appear to be the same, and I have no doubt from Rumph's description of the *Canarium hirsutum* in Amboyna, we may also safely extend its geographical distribution eastward to the Moluccas Islands. †

Ibin Batuta calls the tree *al kundoorao*. ‡ الكندر

The gum is called by the Arabs *laban*. لبان

The Maharas call the tree *maghrayt d'sheehaz*, مغرت ذ شيحز and the gum *sheehaz* شيحز; but the latter are local terms, which are only generally understood among the inhabitants of that part of Arabia in which the tree grows.

The gum is procured by making longitudinal incisions through the bark, in the months of May and December, when the cuticle glistens with intumescence from the distended state of the parts beneath: the operation is simple, and requires no skill on the part of the operator. On its first appearance, the gum comes forth white as milk, and according to its degree of fluidity, finds its way to the ground, or concretes on the branch near the place from which it first issued, from whence it is collected by men and boys, employed to look after the trees by the different families who possess the land in which they grow.

It is curious to observe how correct the ancients were in many of their remarks concerning the Frankincense Tree, and in their description

treble the size of any of the others. The pericarp is pear-shaped and about half the size of an olive; indeed, the tree throughout appears to average half the size of the *B. serrata*. The new cuticle is of a bright hazel brown, color, peeling off in large deciduous flakes from the bases of the principal branches and the trunk, and none but the oldest portions are cinereous. The racemes are fascicled, and as long as the leaves; in Dr. Roxburgh's description they are simple and shorter than the leaves.—H. I. C.

* Visit to the Frankincense country by Capt. Kempthorne, I. N. Jour. Geo. Soc. Bombay, 1841 to 1844 p. 402,—Carless's Chart of the Coast near Gardafui. †Rumph Op. et loc. cit. ‡ Ibin Batuta printed char. with Eng. Trans. by Lee. p. 16

of that part of Arabia in which it grew; curious, because in our days, no one thinks it worth his while, to go beyond the bare coast-line of Southern Arabia.

Theophrastus * and Pliny † have written, that it was only to be found in a particular part of Arabia, and that the name of the country in which it grew was *Saba*, the capital *Sabata*, which was eight days journey from the *thuriferous region*. The tree was about five cubits high and much branched, with leaves like those of the Acacia, and of an herbaceous green colour;—a description almost sufficient to enable one at the present day, to fix immediately upon the tree, in that part of Arabia where it grows. It grew on the mountains, and in the valleys beneath, and from the former small streams flowed into the plains. The soil was sub-argillaceous, sandy, and of a red colour inclining to white. To obtain the gum, slits were made in the bark, but no portion was cut away; that part of the incense which adhered to the tree when taken off, carried with it portions of the bark. The mountains and woods where it grew, were divided among the Sabians, and there was a strict faith observed towards each other, respecting the parts they severally possessed. — But for the disappearance of the Sabians and their towns, I could not offer a more correct description.

They relate also, that the incense was transported on the backs of camels, in bags and packages, marked with the owner's name and the price; these were deposited in the temple of the sun at *Saba*, ‡ and the whole transaction was held so sacred that they were left unguarded, and no one entertained the slighest apprehension of being robbed of the smallest portion of his gum; merchants arriving there paid the prices marked on the packages, one third of which was taken by the priest for the god of the temple, and the remainder was left for the people to whom the frankincense belonged. Arrian writes, that the whole of the frankincense of the *Sachalitic Sinus* was collected into one great heap, which, from its sacred nature, received safe protection from the gods; neither could any one secretly, or openly, take away a grain without the permission of the king, nor a ship laden with it leave the port against the will of the gods. §

Theophrastus, Pliny, and Arrian, however, differ a little in this unim-

* Theophrast. Op. cit. † Pliny Op. cit. ‡ "In urbe Sabia" Salmasius T. 1. p. 355. A. § Arrian. Perip. Mar. Eryth.

portant detail; that it was carried on the backs of camels holds good to the present day, simply because in those parts there has never been any other way of transporting baggage, but the Sabian religion having passed away, there is now unfortunately for the "lords of the soil," no longer any mystery connected either with the tree, or its produce; and the gum, as it is collected, is brought to the nearest port, and finds no other outlet at the present time, but on the coast. Dear as it appears to have been in Pliny's time, when those who were employed in refining it at Alexandria entered upon their occupation "hoodwinked and naked as they were born", * that they might neither see to covet, or have power to conceal the smallest portion of it about their persons; it is now so cheap that it is difficult, even in the country where it is produced, to obtain a sale for it at any price.

The insalubrity of that part of Arabia in which the Frankincense Tree grows, is also fabulous. Diodorus Siculus said the country was infested with the most venemous snakes; † Arrian, that it was so unhealthy that not only the labbrers who lived in it, and who were compelled from want of food to engage themselves in the employment of collecting the gum, died of the pest peculiar to the locality, but, that even those who sailed along that coast were affected by the same unhealthy influence. ‡ Probably the Sabians themselves raised these reports, from a desire to intimidate foreigners, who, from other motives than those of mere curiority, might have wished to visit their country, then so remarkable for the value of its produce. In whatever way it originated, it is incorrect, inasmuch as the climate of the mountainous part of Arabia on which the Frankincense Tree grows, is most invigorating and healthy; it is the abode of the Bedouins of the district, and the resort of the lowland people of the coast during the hot season.

Geographical Position.

In pointing out the position of the Frankincense Region of Arabia I shall dwell on the subject, more for its geographical than for its botanical interest.

* Pliny, Holland's Trans. loc. cit. † Diodorus Siculus. Bibl. Hist. T. 1. L. iii. p. 214. Wessling. ‡ Arrian Op. cit.

Those who have attempted to compare the ancient with the modern geography of Arabia, are aware of the difficulty that exists, from the scantiness of detail in the former, of identifying names, localities, and places, mentioned by the ancients, with those of the present day; and, on this account, it is not a little gratifying, occasionally to meet with such aids as enable us to do this, without having to recur to the flexibility of the Arabic language, to anagrams and transpositions, or to a train of reasoning open to all kinds of objections. I allude in the present instance more particularly to the limits of the frankincense region, after pointing out which I shall endeavour to shew by their undeniable evidence, that Ptolemy's *Libanophorous region* is misplaced, and, by assigning to it its real position, hope at some future period, (assisted by other features equally imperishable and unalterable as those of the frankincense country,) still further to elucidate the ancient geography of the southeastern coast of Arabia.

The limits of the Frankincense Region of Arabia, situated on its southeastern coast, about midway between Ras-al-Had and Cape Aden, have, so far as it has been in my power, been ascertained in the following way. Passing along the coast from the northeast, I have by direct information, and by personal observation of the nature of the country, been able to satisfactorily determine the point, whereat the frankincense tree is first met with, the latitude of which, from the direction of the coast, at once gives its northern and eastern limits: while its extent westward has been ascertained, by carefully enquiring at each town along the coast in that direction, what quantity of frankincense is annually brought to it from the interior, until arriving at that place where the produce of the Arabian tree is never seen. In the same way by the quantity of frankincense brought to the several towns from the interior, it is easy to determine opposite to what part of the coast the tree most abounds, for the gum is so cheap, that to be worth any thing to those who collect it, it must be brought by direct route to the coast from the place where it is gathered.

Coming then from the northeast, we first meet with the frankincense tree on the Sabhan mountains in latitude 17° 30′ N., and longitude 55° 25′ E., where the desert ends, and the wooded mountainous region commences; and in following the coast, which runs southwest, we find the quantity of frankincense exported from the different towns, gradually diminishing after the Bay of Al Kammar, until we arrive at Makalla, from whence none is exported from the interior of Arabia, and but little used

except what is brought from the African coast opposite that town. By the same inquiry we learn, that the produce of the Arabian tree, is exported in largest quantities, from places on that part of the coast which intervene between the latitude and longitude mentioned, and the town of Damkote, in the Bay of Al Kammar, in 52° 47′ east longitude.

Between these two points, the trees are congregated in two distinct localities; on the summits and sides of the highest range of mountains near the coast, and on the plain between them and the sea: the former is called the *Nejdee* نجدي or high land, the latter the *Sahil* ساحل or plain on the coast. *

The *Nejd* or *Nejdee*, is about two days journey from the shore, it is the most elevated portion of the great limestone formation of this coast, which from a height of five thousand feet, here descends in sudden and lofty steps upon the Arabian Sea. To get to it you first cross the *Sahil* already mentioned, then ascend a minor range which is covered with long grass and trees, and after passing a less fertile region called the *Gâthen*, at last arrive at the *Nejdee*, where there is no grass, and but few trees besides those which produce the frankincense. The soil is red and subargillaceous, and in consequence of its scarcity, the trees are generally found growing out of the crevices of the limestone rock. It is from this part that the frankincense is chiefly brought; and as I have before said, that the largest quantities of it, are exported from the different towns on the coast between longitudes of 52° 47′ and 55° 23,′ E., so the *Nejdee* lies behind these towns and between these points of longitude.

The other locality, viz. the *Sahil*, lies in front of that last mentioned; it is the plain between the base of the mountains and the sea, and is bounded on the east by the mountainous promontory of Ras Noos, and on the west by that of Ras Sajar. The frankincense trees are mostly

* Theophrastus says (Op. cit.) that those who went to see the Frankincense Trees, saw also the Myrrh Trees at the same time; this might have been the case in the Somali country where I believe it to be a fact, but not in Arabia; for where the frankincense tree exists in the latter country, the myrrh tree is unknown and *vice versa*; thence the ancient distinction of *Smyrnophorous* and *Libanophorous regions*. There is a tree called by the Bedouins *Mor*, which yields *Mogl*, a gum slightly resembling myrrh in appearance and taste, but not in its perfume which is disagreeable, and which the Persians and Arabs use as a fumigation in the cure of Hæmorrhoids: this grows side by side with the frankincense tree and is equally plentiful.—H. J. C.

congregated towards each extremity of it, viz. about Marbat, and in the neighbourhood of Bandar Resoot, where they are found at the base and on the sides of the mountains, about five miles from the shore, and I believe they are also met with in a similiar position near Hasek. The quantity of frankincense that is collected from them is proportioned to their number, which bears no comparison with the myriads that are spread over the *Nejdee*. The soil of the *Sahil* only differs from that on the tops of the mountains, in being richer and more abundant; collections of fresh water are common in most parts of it, and among the mountains above are rivulets and reservoirs, truly said by Theophrastus "not to be found elsewhere."—* In no part of the southeastern coast of Arabia, is there such an abundance of fresh water, such good land, such rich pasture, and such a variety of plants, shrubs, and trees, as in the Frankincense Region. It may fairly be said, to be the favoured part, the garden of Southern Arabia, while both east and west of it, all is characterized by a cheerless, dreary, arid waste.

So well as the Frankincense Region of Arabia is marked by its comparative fertility, in addition to its having ever yielded large quantities of an incense, that, from the remotest antiquity has been considered by the heathen nations of the eastern world as an essential in their religious ceremonies, it is not surprising that it should have gained for itself the appropriate designation of the *Libanophorous region*, under which appellation we meet with it in the geography of the ancients. But, as they do not appear to have been agreed as to its position, and their Commentators have been unaided by the means which we now possess to adjust their difference, I shall in conclusion, offer a few observations on its real position, compared with that which some of them would appear to have assigned to it.

On looking at Mercator's map of Ptolemy's Arabia, after what I have written, the misplacement of the *Libanophorous region*, becomes obvious; instead of being situated in the central part of the southeast coast of Arabia, we find it carried up into the province of Oman, upwards of four hundred miles from its real position, to a part of Arabia where, from the late Lieut. Wellsted's personal experience, † and my own repeated enquiries of the inhabitants of that province from north to south, I am satisfied the tree does not exist. On the other hand, Arrian, or the au-

* Theophrast. Op. cit. † Wellsted's Trav. in Arab. V. 1. p. 285.

thor of the Periplus, * the most intelligible of all the ancient Geographers, in describing the southeastern coast of Arabia, advancing eastward, commences his *Libanophorous region*, at the *Syagrian Promontory*, (Ras Fartak,) which, in his general description, is sufficiently correct to shew that he was perfectly aware of its real position; yet, accurate as Arrian is in this instance, it is not more easy to comprehend why he should have said "adjoining Syagros" is a bay which runs deep into the mainland of *Oman*, than that Ptolemy should have transported the *Libanophorous region* across the great desert of Ahkaf, to that part of Arabia, which alone bears the name of Oman at the present day. Those who have witnessed the relative position of the Akhdthoor mountains of Oman in the northeast, and the abrupt commencement of the Nejdee or the Sabhan mountains on the southeast coast of Arabia, with the vast expanse of desert between them, cannot well conceive how the oversight could have happened, and can come to no other conclusion, than that both Ptolemy and Arrian must have been misinformed, or have misunderstood their informants; the former as to the position of the *Libanophorous region*, the latter as to the extent of the province of *Oman*; unless we suppose, that formerly the province of Oman extended further to the westward than it does at the present day, when both Ptolemy and Arrian would be right as to the country, but the former must still remain wrong in the position of the *Libanophorous region*. In whatever way we conceive the error to have originated, or attempt to solve the difficulty, we must allow, that Ptolemy's *Libanophorous region* has been misplaced, and that the position given to it by the Author of the Periplus is the correct one.

ARTICLE V.—*On two Balsam-trees (Balsamodendra) from Sindh.* By Assistant Surgeon J. E. Stocks, Vaccinator in Sindh.

1. *The Googul Balsam-tree.*

The gum-resin Googul (گوگل) has had its synonyms traced out by Sprengel (Hist. Rei Herbariæ I. 272), followed by Ainslie (Materia Indica I. 29), and Royle (Ill. Botany Himal. Mount. p. 176), and is the Mukul (مقل) of the Persians and Arabians, and the Bdellium

* Peripl. Mar. Eryth.

Plate xxv.

W. Abraham del. J.B.C. direxit. H.J.C. lith.

Balsamodendron Roxburghii (Arn.)

(βδέλλιον) of Dioscorides and (?) Genesis 2. 12; Numbers 11. 7.

There has always been, however, some degree of uncertainty about the tree from which it is taken.

It is unnecessary to dwell on the idea of Kœmpfer (Amœnitates, p. 668) that it is produced by the Borassus flabelliformis, or of Matthiolus, that it comes from the Chamærops humilis. Moreover it has no connection with the Googul of the Coromandel Coast, which is the Koonder gum from the Boswellia glabra (Ainslie I. 136). Virey, (Hist. Nat. des Medicamens p. 291) first suggested that Bdellium came from an Amyris, the Nintoutt of Adanson, Voy. 162. Heudelotia Africana, Flora Senegambiæ 1. 150. Balsamodendron Africanum, Arnott in Annals Nat. Hist. 3. 87. It is probable that African Bdellium *is* yielded by this shrub, which is a closely allied species to the Indian Googul-tree. This tree Roxburgh had growing in the Calcutta Garden, and described in the Flora Indica 2. 244, under the name of Amyris Commiphora, with the Sanscrit synonym of Googula; but he was not aware of its yielding a bazaar-gum.

In the Hortus Bengalensis it appears as the Amyris Agalloeha, which was probably the name finally adopted by Roxburgh, from some suspicion of the distinctness of Jacquin's plant, the supposed identity of which had suggested the specific name in the Flora Indica.

Royle had this plant in the Saharunpore Garden, and was informed that it produced the Googul gum-resin, but recommends (Him. Botany, and more recently in his work on Materia Medica Lond. 1847) that the subject should be followed up by those who have the opportunity of examining the flowers and collecting the gum.

The tree is abundant on rocky ground in Sindh, about Kurrachee, Garrah, Tattah, Jerrok, &c. in short wherever the limestone formation extends. It is therefore, most probably, very common in Beloochistan and up the Persian Gulph, and is one of the plants connecting the Syrian and Indian Floras.

BALSAMODENDRON ROXBURGHII (Arnott).

Amyris Commiphora.— Rox. Fl. Ind. 2. 244.
Amyris Agalloeha.— Hort. Beng. p. 28.
Protium sp. Balsamodendron.— W. and A. Prod. p. 96.
Commiphora Madagascarensis.— Lindl. Fl. Med. p. 173, and

O'Shaughnessy, Beng. Disp. p. 287, non (?) Iacq. Hort. Schön 2. 66. t. 247.

Balsamodendron Roxburghii.— Arn. Ann. Nat. Hist. 3. 86, and Wight Illust. 1. 185.

Balsamodendron Agallocha.— Voight. Hort. Suburb. Calcutt. p. 150.

A small tree 4 to 6 feet high, or more generally a stunted bush, with thick branches spreading on all sides. In barren and rocky situations the gnarled limbs spread from the crown along the surface of the rock. Branches knotty and crooked, with the ash-coloured bark peeling off in flakes; the sub-terminal ones short and spiniform, with buds and secondary spines on them.—Leaves and flowers collected at the end of short stunted buds, which finally develope into spines, or become young soft shoots, on which the leaves are arranged alternately.

Leaves smooth and shining, obovate, almost sessile, shallowly toothed anteriorly, the tapering base entire; in thriving plants and luxuriant shoots inciso-serrate, cuneate-obovate or oval-acute, with a longer stalk from which spring one, or more generally two, lateral leaflets, which are sometimes minute and entire, but generally serrated, half the size of the terminal leaflet, and overlapping it in its induplicate vernation.

Young leaves, while in the bud, covered with glandular hairs which soon drop off, a few only remaining in the axil and on the petiole. Flowers minute, in little bundles at the ends of the non-developed buds, with or without leaves, subsessile, with 3 minute bracts to each flower.

Calyx cylindrical, 4—5 toothed, thickly covered externally (as are the bracts) with glandular hairs; tube splitting as the fruit developes, and remaining spread out and withered at its base. Corolla of four, rarely five, strap-shaped, brownish-red petals; margins slightly overlapping in æstivation, with an inflexed mucro; tips of the petals curled back.

Stamens 8—10, the four opposite the petals, shorter than the others.

Disk 8—10 toothed, the alternate sinuses deeper and in these are situate the short stamens. Ovary bisulcate, two-celled, rarely three-celled, and still more uncommonly four-celled; sometimes imperfectly developed. There is no relation between the quinary proportion of the perianth, and this increased number of the carpellary leaves.

Ovary tapering upwards and passing imperceptibly into the short and thick style.

Stigma obscurely two-lobed.

Ovules two in each cell, collateral, suspended.

Drupe red when ripe, ovate-acuminated, often bluntly angular, marked by two sutures along which the epicarp and a portion of the mesocarp fall from the base in two fleshy valves, whose position is that of the carpellary leaves, leaving the nut enveloped by a four-cleft orange-coloured pulp, whose arms meet at the apex.

Nut ovate-acute, readily splitting into two. Each half has a groove on the commissural plane, bifurcating upwards. Into this groove fits a prolongation of the axis.

The drupe has sometimes 3 sutures, and a six-cleft pulp; and rarely 4 sutures, 4 nuts, and a four-cleft pulp.

Out of a parcel of 56, two had 3 sutures and one had 4 sutures, the rest being normal.

Seeds generally one in each cell or $\frac{1}{1}$ (two ovules being abortive), often $\frac{0}{1}$ (three abortive), more rarely $\frac{2}{1}$ (one abortive), still more rarely $\frac{2}{0}$ (two abortive), and very seldom $\frac{2}{2}$ (all perfect).

Out of a parcel of 41		Out of a parcel of 61	
15	were $\frac{1}{1}$	24	were $\frac{1}{1}$
13	..... $\frac{0}{1}$	17	..... $\frac{0}{1}$
5	..... $\frac{2}{1}$	8	..... $\frac{2}{1}$
8	all abortive or uncertain.	4	..... $\frac{2}{0}$
		2	..... $\frac{2}{2}$
		6	all abortive or uncertain.
41		61	

Albumen none; embryo straight; radicle superior; cotyledons thin, intricately crumpled and plaited.

Obs. 1. This shrub is called Googul or Googur, by the Hill-Beloochees, who do not know it by the name of Mukul. It yields the gum-resin Googul, which they collect and bring to the bazaars of Hydrabad and

Kurrachee, where it sells at the rate of 4 Rupees the Maund of 80lbs. At Bombay, its Tariff valuation is 2 Rupees the Maund. It is collected in the cold season by making incisions with a knife in the tree, and letting the resin fall on the ground. Hence the dirty and impure state in which it is found in the shops. I have obtained it from September to December, and have found it stand off in large tears from a clean incision, of the consistence and opacity of "pus laudabile." My informants say that from half to a whole seer is yielded by a single tree. It is regarded as cordial and stimulant.

Made up into a cake with bajree flower, it is commonly given to horses and cattle when they have a cold. The dealers from Cabool make a practice of giving it to their horses in the cold season, thinking that it keeps them in health and condition. The fruit and young shoots are given for a similar purpose.

The gum is made into a plaster and used to discuss tumours and boils, and is regarded efficacious in expelling the guinea-worm both taken internally and applied to the tumour.

It is extensively used by the Hindoos as incense for burning in their temples, although its smell is by no means agreeable.

It is also much used by builders, who mix it with the mortar and plaster used in the construction of houses of a somewhat superior description, where durability is an object. The Googul is boiled in water for a considerable time, when its spirit (as they phrase it) is communicated to the water, and the dregs are thrown away. This solution of the gummy part, which according to Neaman's analysis should be six drachms, two scruples in every ounce, is mixed with the lime, and employed with confidence to make the plaster adhere strongly, and to prevent it from crumbling and splitting. The Googul water is sometimes washed over the walls by itself.

Obs. 2. My friend Assistant Surgeon Carter showed me fine specimens of the "Mukul" gum collected by him on the southern coast of Arabia, together with numerous other gums, all accompanied by admirable drawings of the trees producing them. There is, therefore, some error in the statement of Dr. Malcolmson (Royle's Materia Medica) that Bdellium is not produced in Arabia.

Moreover the "Mukul" and the tree producing it, are from Dr. Carter's specimens, identical with the Sindh Googul, and its tree, as might be

Plate xxxi.

W. Abraham del. J.E.S. direxit. R.T.C. lith.

Balsamodendron pubescens (J.E.S.)

expected from the great similarity between the vegetation of the rocky part of Sindh and that of Arabia.

The range of the Googul tree is extensive. Arabia (Dr. Carter); Northern India (Dr. Royle); Silhet and Assam (Roxburgh); and the Garrow Hills (Voigt). Aurungabad? (Dr. Walker). The Deccan? (Dr. Gibson). I have found it in Sindh, and at Deesa in Marwar.

2. *The Sindh Balsam-tree.*

BALSAMODENDRON PUBESCENS. (Stocks.)

A small tree, or stunted shrub, much resembling the Googul tree, but the sub-terminal branches, though abrupt, are not spiniform. Bark peeling off in flakes. Leaves ternate, fascicled at the end of the stunted buds, but on the young soft shoots alternate, with an additional distant pair of leaflets; long petioled, soft and downy (as are the young shoots) with short furfuraceous pubescence. Leaflets obovate, entire, often retuse; the terminal one stalked, the lateral ones subsessile, often somewhat rounded.

Flowers, sessile in bundles at the end of the stunted buds.

Calyx, tube shallow, contracted at the mouth.

Petals, red or white, with æstivation as in the Googul, but erect and not reflexed at the apex in anthesis.

Stamens, equal in height.

Disk, equally toothed.

Ovary, as in the Googul.

Drupe red, globose with a short point, marked by four conspicuous white sutures, the alternate ones (corresponding to the mid-rib of the carpellary leaves) not reaching to the apex of the fruit. Valves two, each cleft half way up by the secondary or false suture. Pulp orange coloured, four-toothed upwards, not reaching to the apex of the nut which is left naked. Nut ovate obtuse; one of the halves into which it splits is a mere flat plate or scale, the other is a perfect cell grooved on the commissural plane. Sometimes the number of carpellary leaves is increased. Thus out of a parcel of 120 there were four, and out of a parcel of 200 there were seven, which had 6 sutures and a pulp 6 toothed towards the top.

In these cases the additional carpel was represented by a second flat plate, or more rarely there were two perfect cells and one abortive

One seed in each perfect carpel.

Albumen none; embryo straight.

Radicle, superior; cotyledons, crumpled and plaited.

Obs. 1. This shrub is called Base by the Hill-Beloochees, who make no use of it. Its young shoots and buds are remarkably fragrant when bruised. In the cold season it yields a small quantity of a tasteless, inodorous, brittle gum, almost entirely soluble in water. It flowers scantily in October, and its leaves and young shoots appear with a few flowers in April and May. It is a native of Beloochistan and the hills which separate that province from Sindh; probably also of Afghanistan, attaining its southern limit about Kurrachee.

Obs. 2. Dr. Arnott makes two sections of the genus Balsamodendron, depending on the relative depth of the calyx. The Googul tree has its calyx long and tubular. The one just described has its calyx shallow; and this is especially observable in a section of the flower. Moreover its fruit differs in having two additional imperfect sutures, in which it agrees with B. Gileadense and Kafal, as we gather from Forskall, and from B. Berryi and Wightii, as Dr. Wight kindly informs me.

Article VI.—*On the Brahmanical manner of contracting third Marriages.* By the Rev. J. Stevenson, D. D.

The ancient Hindu legislators, not having courage enough openly to denounce polygamy, and yet having wisdom sufficient to see the hurtful effects of such a custom, if carried to any great extent, have endeavoured to deter men from its practice by working upon their superstitious fears. Bigamy they permit unchallenged, but place what might at first sight appear an insuperable barrier in the way of contracting a third marriage, by asserting that he who does so, will invariably die in a short period after the ceremony; and this wholly irrespective of the consideration of the wives formerly wedded being alive or dead. Indeed, it is by no means considered respectable for a householder to contract even a second marriage, while his former wife is alive, provided that he has a son; the want of an heir to inherit his property and perform his funeral rites being considered the only proper excuse for departing from adherence to what is generally admitted to be the law of Nature. Brahmanical ingenuity has,

however, without the indecency of running openly in the face of a threatening contained in one of their sacred books, found a way of evading it by getting married the third time to a shrub called by them *Rui* (रुई) a kind of Swallow wort. After this ceremony has been gone through, all the danger falls on the poor vegetable, and so leaving the Puraus and their curses behind him, the disciple of the Brahmans may run in the path of polygamy as far as he feels inclined.

Thinking that a short description of such a singular rite might be interesting to the Society, I have translated a short account of such a marriage drawn up by the Principal of the Hindu college at Poona, and transmitted to me by the Superintendent, Captain Candy. The paper is to the following effect.

"In the Matsya Purána, a third marriage is prohibited, and it is there declared that if any one through ignorance or presumption contract such a marriage he will die, and this denunciation rests on the authority of Garga. In the work that contains the Synopsis of rites and ceremonies, it is stated that if a third marriage is contracted, the woman will speedily become a widow, and therefore in order to accomplish a fourth marriage it is necessary first of all to be affianced to the Rui tree. The rite is performed in the following manner: On Sunday or Saturday, or any time when the sun is in the Lunar Asterism Hasta, let the resolution be expressed and the message of greeting sent by a Brahman. Then let the Manes of the deceased ancestors be worshipped under the name of Nándimukha (Pleasurable faces). The Rui tree is then to be worshipped through the priest, and to be considered as a representive of the sun in union with his wife Chháyá (Shadow); an offering at the same time of raw sugar and boiled rice is to be presented.

Then the following invocation addressed to the Sun is to be made:— "O thou who dwellest in the three worlds, do thou along with thy wife Chháya obviate the dangers that attend a third marriage and confer on me felicity." Then placing the hand three times on the bush, it is thus to be addressed at the first time:

"O Rui, created by Brahmá Deva that thou mayest preserve me, therefore, O beneficent goddess, I prostrate myself before thee. O daughter of the Sun, I worship thee; mercifully preserve me now that thou art come to be my wife." At the second time, he says, "O swallow wort, thou wert produced by Brahmá Deva for the benefit of all living beings. Thou art the first born of trees, who increasest towards us the love of the gods, obviate

the dangers of a third marriage." Then putting the hand out the third time, after this the priest is to say, "I will give to you of such a tribe my daughter Arkakanya, the grand daughter of Savita, the great grand daughter of Aditya, of the tribe of Kasyapa." Then the ceremony of presenting curds, honey, and sweatmeats, is to be performed. The veil is then to be drawn between the parties, and the marriage benediction pronounced. Afterwards the veil is removed, the newly wedded husband puts a garland on the tree, and the priest one on him in the name of his new wife; the marriage is thus rendered indissoluble. Then the priest says, "Now I have given to thee my daughter Arkakanya, the grand daughter of Savita, the great-grand-daughter of Aditya, of the tribe of Kasyapa. After this, gifts are to be given to the attendants and to the priest." Then a thread is to be passed round the newly married pair, and a bracelet bound on one of each of their hands. Vishnu is then to be worshipped . . . . . In all the four points of the compass sacred fire is also to be consecrated, and oblations made to Brahaspati, priest of the gods, to Agni (Fire), Vayu (Wind), Surya (the Sun), and Prajapati (the Progenitor of mankind). Two cows are next to be given to the officiating priest. Then the newly married husband is to utter the following prayer, "O Arka (Sun), as I who am a man, have gone through this ceremony with a tree, grant me descendants and pardon whatever has been done amiss." After which he takes some water and casts it from his hands as the termination of the rite.

[Translation of the Preceding.]

तृतीयेशीं विवाह करण्याचा निषेध.

मत्स्यपुराणामध्ये रतिसाठीं तृतीयेशीं विवाह कधींहि करूं नये, मोहाने किंवा अज्ञानाने जर तृतीया मानुषीशीं विवाह करील तर मरेल यांत संदेह नाहीं, गर्गाचें वचन यापरमाणें आहे, असा आहे व संग्रह ग्रंथीं तृतीयेशीं लग्न केल्यास ती विधवा होईल, यास्तव चतुर्थ विवाह होण्याकरितां रुईशीं विवाह करावा असें लिहिलें आहे. त्याचें विधान; तर रविवारीं, किंवा शनिवारीं, किंवा हस्तनक्षत्रीं नवऱ्याने संकल्प करून स्वस्तिवाचन (आशीर्वचन) ब्राह्मणाहीं करून करवून पित्रांस

नांदी मुख नाम लावून, नांदी श्राद्ध करून, आचार्य वरून रुईचे ठाई छायायुक्त सूर्याचें पूजन करून, गुडादनाचा नैवेद्य करून, तंतूनी वेष्टन करून, हे रवे त्रिलोकांत राहणारा छाया सहित तूं तृतीय विवाहजन्य दोषाचें निराकरणकरून, सुख कर, अशी प्रार्थना करून तीन वेळ पाणी घालावें; माझी प्रीति करणारे, मी उत्पन्न केलेली, प्राचीन सूर्यापासून जात, ब्रह्मदेवाने उत्पन्न केलेली रुई आह्माला संरक्षो, ह्मणोन एकवेळ हे मंगलकारके देवी तुला नमस्कार असो. हे सूर्य पुत्रि, तुला नमस्कार असो. मला कृपेने राख, तूं माझ्या पत्नीलाप्रति आलीस. ह्मणोन दुसऱ्याने. व हे अर्कवृक्ष तूं ब्रह्मदेवाने सर्व प्राण्यांच्या कल्याणार्थ उत्पादित आहेस, तूं वृक्षांचा आदिभूत आहेस, देवांची प्रीति वाढविणारा, तृतीय विवाह जन्य दोषाचा, व मृत्यूचा लवकर नाश कर; ह्मणोन तिसऱ्याने पाणी घालावें. त्यानंतर आचार्याने काश्यप गोत्रांची आदित्यांची प्रपौत्री, सवित्याची पौत्री, माझी पुत्री, अर्ककन्या अमुक गोत्रांतल्या वराला देईन, असें वाणीने दान करून, वराची मधुपर्क पूजाकरून, दोघामध्यें वस्त्रधरून, मंगलाष्टक ह्मणून, मग वस्त्र काढून नवऱ्याकडून रुईस माळ घालावी, व आचार्याने रुईची माळ नवऱ्याचे गळ्यांत घालावी, असें लग्न लावावें. त्यानंतर काश्यप गोत्राची आदित्याची प्रपौत्री सवित्याची पौत्री माझी पुत्री अर्क कन्या अमुक गोत्रांतल्या वराला तुला दिल्ही, असें दानकरून दक्षिणा द्यावी. तदनंतर रुई आणि नवरा यासभोवतें सूत्र वेष्टून या सूताने रुईत एक, व नवऱ्याचे हातांत एक, असीं दोन कंकणें बांधून रुईच्या चोहो दिशेस कुंभावर विष्णुपूजाकरून, अग्निस्थापन करून बृहस्पत्यर्थ व अग्न्यर्थ होम करून, अग्नि वायु सूर्य प्रजापत्यर्थ होमकरून, आचार्यास दोन गाई देऊन, मी मनुष्याने वृक्षाचे ठाई हे कर्म केलें हे अर्क मला अपयें दे, आणि तें सर्व क्षमा कर, अशी प्रार्थना करून, या कर्माने परमेश्वरास संतोष व्हावा ह्मणोन पाणी हाताने सोडावें.

ARTICLE. VII.—*Reports accompanying Copper Ore from the Island of Masceira, and on Lithographic Limestone from the Southern Coast of Arabia.* By Assistant Surgeon H. J. CARTER.

To the Secretary to the Bombay Branch Royal Asiatic Society.

SIR,—I am directed by the Honorable the Governor in Council, to transmit to you, for presentation to the Bombay Branch of the Royal Asiatic Society, the annexed Copy of Reports, by Assistant Surgeon Carter, on Copper Ore from the Island of Masceira, and Lithographic Limestone from the south-east coast of Arabia, accompanied by specimens of the ore.

I have the honor to be.
Sir,
Your most obed. servant,
W. ESCOMBE,
Secretary to Government.

Bombay Castle,
21st December, 1846.

While the Officers of the H. C. surveying Brig "Palinurus" were engaged in surveying the channel between the mainland of Arabia and the the Island of Masceira, I occasionally amused myself by collecting specimens from the mineralogical productions of the latter, and having heard, (but from what source I cannot now remember,) that the Persians formerly worked Copper mines there, I determined to test as far as possible the validity of the report. With this view, I from time to time, as the survey of the inner side of the Island was carried on, landed and prosecuted my research by excursions across it, opposite the point at which we were stationed; but my investigations were unattended by success, and the inhabitants either could not or would not guide me to the mines, being altogether ignorant of the facts of their existence, or otherwise too cautious to enlighten me on the subject, not thoroughly understanding, for some time after our arrival, what was the real nature of our visit to their Island. We had reached the south-western extremity of Masceira, before I had the good fortune to discover a vein of the mineral, of which I had been so earnestly in search. I had wandered over many miles of the

forests of volcanic Cones, (for such is their appearance when viewed from a height), which pervade the island, and was about to relinquish my search, when, on the morning of February 1st 1846, I landed about a mile from Ras Abo Rasas, the south-westernmost point of Masseera; and after a short ramble fell in with some small portions of the blue carbonate of Copper, (Azure Malachite, M.). Had I seen the vein at that moment, I could not have felt more confident of its existence or more delighted with my success; and but a little further on, I halted at the sites of some old smelting-places, around which was a quantity of the blue mineral just mentioned, and slags containing portions of it in a reduced state; and a few moments more brought me to the object of my search viz. the ore itself *in situ*.

It occurs in the form of the blue and green carbonates, disseminated in crystalline quartz-veins which are about six inches in width, and associated with brown Hematite. These veins, to which the mineral appears to be confined, traverse a green hornblendic earthy rock in the direction of north and south; they have not been much worked below the surface, and there are no remains of shafts or subterraneous excavations in their neighbourhood.

Afterwards I discovered some of the "Blue carbonate of Copper," strewed over the surface of the ground, on the outer side of the island near Ras Jah, but as it was towards evening that I fell in with it, and the sun had set, I had not another opportunity of returning to the same spot to seek for the vein.

The third and last place where I met with the mineral mentioned, is about a mile due east of Ras Jazeera, a little Cape on the outer-side of Masseera, close to which is a small island. Here the veins are in a reddish trap rock, and though much richer than those at Abo Rasas, they have been less worked; as at the latter place they are about a mile from the shore, and from fifty to one hundred feet above the level of the sea.

After it became known to the inhabitants that we were aware of the existence of Copper in the island, I was informed that there are several other places, which I had not seen, situated near the village of Garen, where there are also the remains of smelting-places, said to have been built by the Faringhees; but as my excursions were over, the survey of the Island of Masseera completed, and we were about to weigh anchor to

take up a station on the opposite coast, I had not an opportunity of visiting them.

The specimens accompanying this Report have been collected from the *debris* of the decomposing metalliferous rocks which the veins traverse, and will serve to shew in what form the Copper occurs in the volcanic rocks of Masseera; but the richness or poorness of the veins themselves, lower down, in the undecomposed part, must be ascertained by a more extended examination than it was then in my power to accomplish. Of this I feel satisfied, that there are many others of the same mineral which I did not see, many also undiscovered, and that there is a vast quantity of Copper Ore scattered through the *Trap Rocks* of Masseera. That these mines at some time or other were considered worth working, is proved by the presence of the remains of old smelting-places in the vicinity of the veins, but with what profit, is probably now unknown.

The Island of Masseera is inhabited by the Janabah tribe, a cognate tribe of the Beni-Bo-Ali, and a few families of the tribe of Hakimah, who people the islands in Gulaat Hashish. At first they were much opposed to our landing, and threatened to murder the first boat's crew that came on shore; subsequently, however, Hamud, Shaykh of Soor, came down for the purpose of mediating between his uncle Mohamed bin Mohamed, Shaykh of the Janabah tribe, and ourselves, and after a reconciliation had taken place, the steadiness and kindness of treatment every member of the tribe received, won for us their good opinion, and our departure from the island was as much regretted by its inhabitants, as our arrival had been considered hostile and unwelcome.

So willing were the inhabitants to supply all our wants, after the object of our visit was thoroughly understood; so great is their confidence in our pecuniary transactions with them; and so much more are they given to habits of industry than the Bedwins of the mainland, that if any desire of the Government to work these Copper mines was intimated to them, I feel convinced that they would hail the proposition with delight, as holding out a prospect of amelioration which, from the barrenness of their island and their extreme poverty, they could expect from no other source.

The channel between Masseera and the mainland, though difficult to navigate, is safe, offers good anchorage and plenty of water. It would appear by the information obtained from the inhabitants, that having anchored there, you could not work out during the south-west monsoon, but

could remain as safe as during the north-east monsoon, when there is hardly a ripple there to disturb the surface of the water.

There is excellent fresh water to be obtained from shallow wells on the inner side of the island, but provisions of all kinds, excepting fish, are scanty from the barrenness of its soil.

Report on Lithographic Limestone from the South-east Coast of Arabia.

As we approach the south-western half of Kuria Muria Bay, on running down the south-eastern Coast of Arabia from the N. E., a Limestone formation of great magnitude makes its appearance in the form of mountains near the sea, backed by table land, (a less disturbed part of the formation), elevated about four thousand feet. From the Bay of Kuria Muria this highland is continued on with trifling interruptions here and there, of valleys and passes, to the Fudhaylee mountains, a little to the north-east of Aden. In its composition are found limestone strata of various degrees of purity, passing from pure compact fine-grained limestone above, breaking with a conchoidal fracture, downwards into coarse micaceous sand-stone. It is near the village of Marbāt towards the upper part of its series, that I observed a stratum possessing the character and properties of Lithographic Limestone, and from which I gathered the specimens I have now the honor to forward. One of them has been ground down by Dr. Buist, whose report on its genuine character, and its commercial value, I beg leave to annex to my own; and to prove its identity with that used for lithographic purposes, a design has been transferred to it, from which the accompanying impressions have been taken, that, in forwarding the specimens, satisfactory evidence might at the same time be given of what can be produced from them.

The stratum composed of this stone, is from three to four miles inland (varying with the distance of the highland from the shore), close to the summit or edge of the table-land above the village of Marbāt; from whence there is a descent towards the sea, sometimes gradual, sometimes precipitous, so that blocks loosened from the top, could with little trouble, be rolled down to the water's edge, where they might be immediately shipped; there is also a running stream of fresh water on the spot. As however the stratum must be continued on, and the mountains are equally near the sea for some distance on both sides, there might even be a still

more convenient position for quarrying the stone than that above Marbât; at all events this would offer an advantage in the selection of material.

The people who inhabit the highland, where the lithographic stone is to be found, are the Beni Gara; they are fierce and revengeful, but if properly treated, are easily managed; and though they would not submit to be employed as quarrymen, yet they would be quite ready to enter into any engagement to protect others from being attacked by the more predatory part of their tribe. At the same time each Beit or family, of the Gara tribe, possessing its distinct and particular portion of the district they inhabit, and being exclusively entitled to its peculiar produce, it would simplify the matter much, to treat with that family only from whose land the stone might be required to be taken; this could not be done, however, without the concurrence and the aid of the Arab (not Bedwin) Shaykhs and merchants of the neighbourhood, who, under the idea of participating in the gain, would be quite willing to smooth the way for the introduction of any commercial scheme. Before however proceeding in the matter, it would be advisable to ascertain more satisfactorily what quantity of Lithographic Limestone the stratum is capable of yielding, as well as its average uniformity of texture; points, which from such investigations generally being considered of so little consequence compared with the main object of the survey, I had neither time nor means afforded me to determine.

Bombay;
November 30th, 1846.

H. J. CARTER.
Assist. Surgeon.

ARTICLE VIII. *Notice of Dr. Roth's investigations of the Vedas.* By the Rev. J. M. MITCHELL.

Some recent researches into the literature and history of the Vedas, conducted by a German Orientalist, Dr. Rudolph Roth, have been productive of results sufficiently interesting and important to claim the attentive consideration of our Society. These results have been communicated to the public in a volume, of 180 pages 8vo. entitled

Zur Litteratur und Geschichte des Weda. Drei Abhandlungen, von Rudolph Roth, Doctor der Philosophie. Stuttgart, 1846.

A special interest attaches itself to the Vedas at present, from the

fact that the Court of Directors is understood to have come forward in patronage of an edition of the Rig Veda, which is to be edited in Sanskrit by a German Scholar, Dr. M. Müller, with a translation into English by Professor Wilson. Independently of this, however, Dr. Roth's contributions to Oriental investigation would be most welcome to all who take an intelligent interest in the history of the human race, and in the unsealing of a book which is unquestionably one of the most remarkable of its records.

Dr. Roth seems carefully to have examined the MSS. of the Vedas that are deposited in the library of the East India House, London, the Bodleian library at Oxford, and the Bibliothèque Royale at Paris.

The following is a condensed statement of the results to which his inquiries have conducted him.

The Vedas are properly five in number,—the *Rik*, the *Sáma*, the *White Yajus*, the *Black Yajus*, and the *Atharva*. A Veda consists properly of two perfectly distinct parts, the first being collections of hymns, the second liturgical treatises. The first part is called *Saṅhitá*; the second, *Bráhmana*. These two parts are probably not of the same age,—the hymns being more ancient than the liturgical treatises. Among the five Vedic books denominated *Sanhitá*, there are, however, only four collections of hymns. The fifth, the *Taittiriya Sanhitá* (or the so-called hymns of the *Black Yajus*), is a liturgical work.

Among the four collections of hymns, the *Rik* is the most extensive, amounting to nearly 11,000 verses. The *Atharva* hymns are nearly as numerous; those of the *Vájasaneya* (or *White Yajus*) may amount to half as many as those of the *Atharva*, and those of the *Sáma* to one fourth of those of the *Atharva*. The hymns of all the four Vedas taken together may amount to about 30,000 verses.*

But, as Colebrooke has remarked, the hymns of one Veda are often repeated in one or more of the others. Nearly the entire *Sáma* is in the *Rik*. About half the *Yajus* is in the *Rik*. Roth speaks doubtfully respecting the *Atharva*, of which he has been able to consult only an indifferent copy, but conjectures that one-third of it is in the *Rik*.

* In the *Jahrsbericht der Deutschen Morgenlandischen Gesellschaft* for 1845 and 1846, the numbers are thus stated on Roth's authority: *Rik*, 10,500 double verses; *Atharva*, about 8,000; *Vájasaneyi*, considerably fewer; *Sáma*, about half of the *Vájasaneyi*.

The usual division of the *Rik* may be called purely mechanical. It is into 8 equal parts (*ashtaka*), each *ashtaka* being divided into 8 sections (*adhâya*), and each *adhâya* into *varga* of 5 verses each. This arrangement appears to have been adopted simply to facilitate reference to the Veda in schools. The true division is into 10 *mandala* (books), consisting of *anuvâka* (chapters), which are again divided into *sukta* (hymns) and *rik* (verses).

The disposition of the parts of the *mandala* depends partly on ritual reasons, partly on similarity of subject; — for example, invocations of Agni generally come first, then of Indra, and so on.

We may specifically designate the *Rik* as the *historical* Veda. The collection of its sacred hymns is an astonishing work, and proves the existence of a scientific development of mind among the Hindûs at a date long anterior to that when the Homeric poems were brought together. More than one thousand hymns are here before us, in which the ancient inhabitants of the Panjâb implored blessings on themselves and their herds, saluted the glowing East, sang the combat of the lightning-darting god with the dark night, and rendered thanks to the celestial powers, which had dispensed to them, as they believed, succour amid their battles.*

* Such, very nearly, is our author's animated description. It will be seen that he contemplates these ancient hymns in a purely literary point of view. It is however interesting and useful to examine them in another light; and when we do so, we are compelled to form a far less favourable estimate of their character. It is true, that the general absence of *anthropomorphism* from the Vedic notion of divine beings, necessarily excludes many of the worst outrages against morality that shock us in the Purânas, in which the worship of deified heroes and gods assimilated to men, plays so important a part. Still even in this respect the Vedas are faulty; and in the character of the sacred Rishis—particularly as these are represented in the commentaries on the Vedas—there is much that is morally repulsive. A dialogue is given in which Yama endeavours to seduce his twin-sister Yamunâ. The Rishi Vasishta is assailed by the house-dog, when about to steal grain. See Colebrooke, Asiat. Res. vol viii. p. 401 402. The warlike and revengeful character of the Rishis will be afterwards noticed. Gross indelicacy (such as in Rosen's Rig Veda p. 214, 215,) is too common to attract much notice. More portentous is the passage from the *Vrihad Aranyaka* quoted by Colebrooke *at supra* p. 440.

Enthusiastic antiquarians like our author sometimes dislike such remarks as these. But, even were we permitted to waive the claims of religion and morality, a purely literary estimate of the Vedic hymns would be chargeable with that one-sidedness which the Germans generally pride themselves on shunning.

It must not be supposed, however, that the hymns of this Veda are exclusively religious. A hymn in the 7th *mandala* (noticed briefly by Colebrooke) describes in jocular language the revival of the frogs at the commencement of the rains, and compares their croaking to the singing of the Brâhmans in worship. In the 10th *mandala* we have the lamentation of a gamester over his ruinous devotion to play. Other instances might be adduced. Probably, those non-religious portions belong to a later period.

The *Rik* professes to give the hymns in the complete form in which they were *seen* by the Rishis. Not so the *Sâma* and *Yajus*, the liturgical purpose of which has materially affected their contents. In the *Sâma*, the metre has had much influence; similarity of sound even, appears frequently to have affected the succession of verses.

The undoubted fact that the hymns of the *Sâma* and *Yajus* form part of the *Rik* does not prove that the contents of the *Rik* were first *collected*. Probably, those that were required in worship, viz. those of the *Sâma* and *Yajus* were first brought together. The collecting of the *Rik* hymns depended on other and more scientific grounds. We may even presume that science, as usual, may have overdone her task; and, instead of transmitting the ancient hymns in an unaltered form, may have tried to improve upon them, and so given us a *rifacciamento (ueberarbeitung)*. Still, we see no cause for holding that the collectors of the *Rik* tampered with the old hymns in any thing essential.

The *Atharva* does not present us with single unconnected verses, but with complete hymns, the order of which is determined by their subjects. In this respect it resembles the *Rik*. Indeed, it may be called a supplement to the *Rik*,—a supplement which aimed at comprising the religious hymns of a period, when the *mantra* was no longer the expression of direct religious feeling, but had degenerated into a kind of charm or magical formula. This Veda, then, consists mainly of texts intended to protect against the hostility of divinities, against sickness, against wild beasts, &c. it contains curses against enemies, invocations of healing herbs, and prayers for aid in the occurrences of ordinary life, for safety in travelling, success in play, and so forth. In the passages common to the *Rik* and *Atharva*, the latter introduces many capricious inversions and alterations. In the portions peculiar to the *Atharva*, the Sanskrit approaches to the flowing diction of a later age, although the forms of the

words still remain archaic. A remarkable fact in the relation of the *Rik* and *Atharva* is, that the *Rik* towards the end (10th *mandala*, last chapter) contains many sections decidedly bearing the character of *Atharva* hymns, and actually found to be contained in the *Atharva*.

Many additional proofs might be adduced to shew not only the more recent collection of the *Atharva*, but also its more recent composition.

A very interesting section in Dr. Roth's treatise is on *the historical element in the Rig Veda*. He presents us with the text and a translation of various portions of the *Rik*, relating to the celebrated *Rishis Vis'wámitra* and *Vas'ishta*. From these passages he thinks he is able to deduce important historical facts. They relate to a great struggle which is represented as carried on by the ancient chief families on the banks of the *Vitasta*, which Roth identifies with the Hydraotes in the Panjáb. He holds it to be established by the *Rik* that the ancient Hindú families resided farther to the northwest than we find them in the later books, and nearer the Indus than the *Yamuná*. The *Sindhu* or Indus is often mentioned, and highly celebrated; in the *Rik* hymns, it is termed, for example, *apasám apastamá*, the most copious of streams,—whereas, Roth has found the Ganges only once referred to, and then, with no special commendation. The remaining rivers of the Panjáb can also be clearly made out.

We find the ancient families which are accounted holy in the later Indian books, represented in those early poems as actively engaged in strife and war. Races, which, at the remote period referred to, possessed a common habitation, a common speech, and a common creed with those holy families, were afterwards widely separated from them in all respects. The religion that was born on the banks of the five rivers, was reared into a stupendous system in more southern lands; and the Brahmanic people applied the appellation of barbarians to those tribes which they had left behind, and which received a different development from themselves. The ancient songs breathing strife and slaughter were succeeded, in the fertile plains of the south and south-east, by sacrificial hymns and prayers; the gods too changed: and the once chivalrous race, courting ease and abandoning itself to superstitious dreams, retained no trace, except in a rigid asceticism, of that dauntless and energetic spirit by which, in days of old, it had been so remarkably distinguished.

Among the Vedic *Rishis*, *Vas'ishta* was farthest to the south-west,

and already possessed the region that subsequently came to be regarded as the holy land. *Viśwámitra* was farther to the north-east, and in the tract which was afterwards held to be barbarous. *Vaśishṭa*, in whom the lineaments of the future Brahman are discernible, was in subsequent times exalted above his warlike compeer. *Vaśishṭa* is the priestly hero of the new order of things. *Viśwámitra* is the last representative of the warrior-shepherds of the Panjáb.

Such would seem to be the general historical import of that great contest between the two Vedic families, the memory of which is preserved in the books of all succeeding times.

An interesting portion of Dr. Roth's treatise is occupied with statements relative to three Grammatical treatises, which he has been the first to bring to light. These are termed *Prátiśákhyá Sútráni*, i. e. Grammatical aphorisms belonging to each school. These works treat of the elementary part of Vedic Grammar, particularly the grammar of the *Rik* accent, *sandhi*, lengthening of vowels, pronunciation, &c. To these books Roth is disposed to ascribe a high antiquity. A passage in the ancient grammatical work called the Nirukta, proves that they are more ancient than Yáska, and consequently than Panini, the father, as he is often called, of Sanskrit Grammar. Supposing Panini to have flourished about 300 years before the Christian era, the *Prátiśákhyá* sutras now brought to light cannot be of later origin than between 450-400 B. C. These books again, however, frequently refer to still older grammatical treatises, and these we must suppose not more recent than from 500 to 450 years B. C. The collection of the Veda itself cannot well have been later, according to Roth, than the 7th century B. C.*

In the preceding remarks, I have contented myself with being simply the expositor of the views of Roth. The subject is so recondite, that few even of those who have paid attention to Sanskrit literature, can, without presumption, attempt to discharge the higher task of the critic. It appears, however, sufficiently plain that the results at which this zealous Scholar has already arrived, possess what our German friends would call an *objective validity* sufficient to excite the highest hopes regarding the services which he will render to Oriental literature, should his researches be continued in the spirit in which they have been commenced. Even already, although he has by no means equalled Colebrooke in all-

* *Jaresbericht der Deutschen Morgenlandischen Gesellschaft*, p. 26.

ditions made to previously existing knowledge, and although the Essay on the Vedas of that profound and accurate Orientalist is at this moment by far the best exposition of those works, yet it must be admitted that Roth has brought forward not a little new and important matter.

Besides the treatise which has formed the subject of this notice, Roth has published an article on "Brahmá and the Brahmans," in the *Zeitschrift der Deutschen Morgenlandischen Gesellschaft, Heft I.* 1846, which, if it is not at all times perhaps convincing, is throughout most interesting.

Along with thorough-going German research, our author seems to possess an almost *Jonesian* ardour and imaginativeness. He is thus able to impart no small degree of fascination to his views. In his hands the old Vedic hymns, which lie withered and sapless in our collections, like the constituents of a *hortus siccus*, seem to burst afresh into life, and resume whatever of grace or fragrance they originally possessed; so that, when we consider them in a merely literary point of view, we are free to confess that among these faded leaves there lie, potentially, charms we could little have suspected. Many however will, we trust, approach the Vedas with yet other feelings; and, recognizing in them the most authentic and complete memorial of the human mind's early aberrations from primeval truth, will contemplate them in a far higher than merely esthetical point of view, and be enabled to deduce from those monuments "covered with the hoar of innumerable ages," lessons, which the human race, in all succeeding times, and throughout all lands, will do well to ponder and lay seriously to heart.

ARTICLE IX.—*Correction of the Girnar Asoka Inscription.* By Captain LEGRAND JACOB. Belgaum, 3rd March, 1845.

SIR,—I do myself the pleasure to send you a Table of corrections of sundry errors in the Lithographed copy of the Girnár Asoká Páli Edict, published in No. V. of the Society's Journal. My own copy may possibly be defective but it may help to aid any revised translation that may be attempted of this very ancient Inscription.

Girnar Asóká Inscription.

Table of Corrections of sundry errors in the Lithographed Copy of the Girnár Asóká Inscription published in No. V of the Bombay Asiatic Journal 1843. — By Capt. Le Grand Jacob.

1st Division.

4th line 2d letter for read 3d letter for read

8th — 1st — for —

10th — 5th — for —

11th — 5th — for — 10th — for — 11th letter read or 16th letter for read

12th — last — for —

2d Division.

1st line 2d letter for read

2d — 18th — for — 23d letter for read

4th — 3d — for — 10th — for — 18th let. for read

5th — 8th — for —

6th — 20th — for —

8th — 24th — for —

3d Division.

1st line 29th letter for read

2d — 8th — for — 12th letter for read

3d — 23d — for —

4th — 6th — for — 23d — for —

5th — 7th — for — 9th — for —

4th Division.

1st line 5th letter for read

2d — 16th — for —

4th — 14th — for —

5th — 3d — for — 12th letter for read

6 The "answer" should follow the 1st letter and not be below the 2d.

8th line 14th letter for read for read

9th — 8th — for — 25th letter for read 29th letter for read last letter

10th — 1st — for omitted — 3d — for — 20th — for —

11th — 4th — for — 7th — for — 8th — for —

Do. — 26th — for omitted between ⊙ and ○ read last letter for read

12th — 18th — for read 25th letter for read

A. The first omitted letter counted.

5th Division.

4th line 13th letter for read 16th letter for read 46th letter for read

5th — 2d — for — 18th — for —

6th — 2d — for — 3d — for —

7th — 25th — for —

8th — 15th — for —

9th — 6th — for —

6th Division.

1st line 1st letter for read 21st letter for read 11th letter for read

2d — 4th — for —

7th — 1st — for — 28th — for —

9th — 2d — for — 22d — for —

10h line 23d letter for 66. read 26h letter for 66 read

11h — 20 — for 67. —

13 — 24 — for 68. —

8th Division.

1st line 31st letter for 69. read

2d — 23d — for 70. — 26h letter for 71. read 35h letter for 72. read

5h — 10h — for 73. —

9th Division.

1st line 17h letter for 74. read 30 letter for 76. read

6h — 35h — for 77. omitted after read

7h — 22d — for 77. read

9h — last — for 78.

B.

1st line 29 letter for 79. read

3d — 16h — for 80. —

4h — 10h — for 81. —

2d line 16h letter for 82. read

4th line 39 letter for 83. read

6h — 18h — for 84. —

9h — 10h — for 85. —

3d line 6h letter for 86. read

10th Division.

B the two erased letters not counted.

11th Division.

12th Division.

13th Division.

9h letter for 87. read

4th line 1st letter for omitted read [illegible] 17th letter for [illegible] read [illegible] C. The first omitted letter counted

N.B. The note to the 28th letter [illegible] of this line has by mistake been given in the lithograph below the following line.

8th line 12th letter for [illegible] read [illegible] 13th letter for [illegible] read [illegible] 20th letter for [illegible] read [illegible]

N.B. The notes to the 8th line have been inserted incorrectly, this line therefore is here given in full.

8th line D [illegible] space for two letters doubtful [illegible] E.F.G. [illegible] H space but very doubtful [illegible]

In the 11th line 13th Division, for the lithographed note to the blank space for "perhaps it", read "perhaps [illegible] but extremely doubtful."

D. Y — all but, if not utterly impossible very faint trace apparently unevenness of rock of [illegible]

E. Very doubtful if there be an upper stroke to constitute a [illegible]

F. Doubtful if dotted line be fracture or letter, the vowel, i, being the most likely portion.

G. h, impossible, n, quite plain.

H. "ga" rather than "la", "ya", impossible.

14th Division.

2d line last letter for ⅄ read ⅄

4th — 24th — for ⊙ — ⊙

5th — 19th — for ⏀ — ⏀

/ Signed / G. L. Jacob.

H.I.C. lith.

ARTICLE X.— *Some Remarks on the Relation that subsists between the Jain and Brahmanical systems of Geography.*

By the Rev. J. Stevenson. D. D.

Before entering on the immediate subject of this paper, a few remarks require to be made upon the illustrative maps appended. I have to acknowledge my obligations for those necessary appendages, to a pupil of the Elphinstone College, Vasudeva Bapu, and to Bombay Lithography, which has not allowed his labour and skill to prove abortive. The maps were ordered to be drawn according to the Bhagavat, and in relation to the first I need not here make any remark. The difficulty all lay in the execution of the second. Jambudwipa and the Salt sea, the subject of the first map, is comparatively a known world, having some limits, but the remaining Dwipas and seas almost set reason at defiance. The whole diameter of a great circle of the earth is 50 crores of Yojanas, or four thousand millions of miles. The diameter of the seven Dwipas amounts to little more than a tenth of this. The Lokaloka mountains, at the extreme limits of the earth, are said to have a width equal to one fourth of the whole, or 12 crores and 50 thousand Yojanas. The distance from Meru, in the centre, to the circular mountains Manasottara, in the last belt of land, is found by computation to be 57 lakhs and 50 thousand, and this is said to be the extent of the Suvarna Bhumi, *land of gold*, used for a play ground by the gods. The radius of Jambudwipa is half a lakh; the width of the Salt sea one lakh of Yojanas; the next continent is two lakhs in width; the west sea is the same; the next continent is double of that, and so on; giving us as follows:

Radius of the circle embracing the 7 Dwipas	2,53,50,000
Extent of the golden land	1,57,50,000
Extent of Lokaloka	12,50,00,000
	16,61,00,000
Subtract this from radius of the whole, viz.	25,00,00,000
And we have a remainder of	8,39,00,000

Leaving a belt of eight crores and 39 lacks of Yojanas unaccounted for. What then was to be done with this? Why, the best thing that

could occur to a school boy was done, and the excess was thrown up to the play ground, at the expense however of increasing it to five times the size assigned in the Puran. In the Vishnu Puran, the boundary chain of mountains is only 10 thousand Yojanas wide, but the whole extent is stated to be the same as in the Bhagavat. Professor Wilson supposes this total was intended to embrace also the planetary spheres.

The central region of the earth, it will be seen, is supposed to be occupied by the solid circle of land called Jambudwipa, the diameter of which is said to be a hundred thousand Yojanas, divided mostly by transverse chains of mountains, into nine great Divisions or *Varshas*. The Salt sea, a belt of water a hundred thousand Yojanas wide, surrounds all this central continent, and is encircled by *Plakshas Dwipa*, a band of land twice its width, and which by transverse ranges of mountains is separated into seven Varshas. This continent is surrounded by the sea of sugar of the same width, and it again encircled by Salmali Dwipa. In the same manner, and increasing in the same ratio, follow the sea of ardent spirits, *Kusadwipa*; the sea of melted butter, *Krawnchadwipa*; the sea of milk, *Sakadwipa*; the sea of cream, *Pushkaradwipa*; and the fresh water sea. The last mentioned continent, however, instead of being divided by transverse chains into seven parts as the rest, is divided by a circular mountain chain, called Manasottara, into two equal parts. Then follow the golden land and the boundary chain called Lokaloka, of which we have already spoken.

Instead of seven continents, the Jains acknowledge only three, and the outer part of the last being uninhabited, the two others and a holy continent with them, mean the habitable earth. The sea around *Jambudwipa* is a salt water band of twice its diameter, or two hundred thousand Yojanas. Dhataki, the next band of land, has a width of twice this extent, and the fresh water sea by which it is encircled, is twice that again, while Puskara is double of that, or 16 lakhs. This system is much simpler than the Brahmanical, and is evidently the original from which the other was formed, though the observations on which it was modeled, seem to have embraced little more than the knowledge that the Ganges and Indus ran into the sea, and that there were mountains and vast collections of fresh water to the north of the Himalayas. The Peninsula must have been wholly unknown, or the fabricators could never have made the line of coast, from the mouths of the Indus to those of the Ganges, the arc of a circle a hundred thousand Yojanas in diameter.

In reference to more minute particulars, both parties agree as to the position and heights of Meru, rising a hundred thousand Yojanas from its base, though of these 16 are under the earth's surface. This funnel-shaped central mountain is 16 thousand Yojanas in circumference at its base, and 32 at its summit. * On the top of Meru the Brahmans have placed the city of Brahma, while the Jains assign this site to the abode of Lakshmi, goddess of good luck, the Latin *Fortuna*. The great chains which divide Jambudwipa, are the same in postion with Brahmans and Jains, only that the Jains interpose between us and Himavat the range called Waitadhya, or the white mountains, from behind which the sun is seen to rise. The chain on the north of Meru, which corresponds to the Himavat on the south, is called Sikhari, a name given also to Mount Parisnath. These two mountains are both of a light yellow colour, and send out at each extremity two lotus-leaf shaped promontaries, extending more than half way through the Salt sea, so that in all, we have eight of these projections. The two next chains, one on the north and the other on the south, corresponding to the Hemakuta and Sweta Parvata of the Puranas, are called by the Jains Mahimavat and Suvarna Kuta, being respectively of a white and golden colour. The northern and southern Nishada, the former painted green and the latter red, and corresponding to the Nishada and Nila of our map, form the last pair of parallel ranges of mountains, running east and west. The central portion of Jambudwipa is divided by the Brahmans, as shewn on the map, into three sections. To these the Jains add two more, drawing lines from the extremities of the southern, till they meet the northern Nishada. These segments they call the eastern and western Máha-Vidrehas. In the angles of Havritta, called by them Devakuru and Uttarakuru, the Jains place four enormous tusk-shaped mountains, that on the southeast being yellow, that on the south-west green, that on the north-west white, and that on the north east red; near these also the four trees are situated which they, as well as the Brahmans, suppose to rise to immense height in these regions. The districts of Bhadrasna and Ketumala they call Vijaya and Uttarardha Vijaya. These are divided by transverse ranges into thirty-two parts. Sixteen districts of Vijaya lie on the east, and sixteen on the west of Meru, and the districts of Uttarardha Vijaya lie to the south and north of these, and come in contact on both sides with the Nishada mountain. These 64 portions of

* By mistake the accompanying map gives but half these number.

land are divided from one another by alternately blue and red mountains. The smaller divisions of Jambudwipa amount in all to 190, of which though six belong to Bharat Khanda, or the region south of the Himalayas, only one, the district between the Indus and Ganges, is inhabited by men acquainted with true religion. The others are the abode of Mlechchas, men who do not follow the religious system of the Jains. The two rivers take their rise from the Himavat, not from Meru as on our map. The Jains place a lake on the top of each of the mountainous chains in its centre, from which have their source two rivers, one running eastward on the south of the mountains, and another westward on the north. The two rivers that run from the Nishadas to the central regions, pass through five additional lakes, after the manner of the St. Lawrence, till they approach Meru, when they take a bend, and pass perpendicularly down through the centre of the Vijayas. The river that flows from the top of the Himavat to the east, divides itself into two portions, forming the eastern and western sides of a spherical triangle, of which the Salt sea forms the base. The district of Airavartta, on the opposite side of Jambudwipa, corresponds in most particulars with Bharat Khanda. Its capital city is Prabhasa, while that of Bharat Khanda is Ayodhya. These are the only two districts that are subject to periodical destructions and renovations. They form the chief abode of human beings, though the Vijayas also are inhabited by men, and have four *Tirthankaras*, divine sages, living in them at present. The central portion of the earth around them, and the two immense plains to the south and north of the Nishada mountains, on either side of Meru, and contained between the longitudinal ranges of mountains above described, are inhabited by Hermaphrodites, called by the Jains, *Yugalas*. The height of those in the central regions is three * garus, in the next division two, and in that nearest the abode of man, one. It is from these *Yugalas* that the population of the earth is renewed after a periodic destruction; for by residence in our locality, and eating the fruit it produces, they become men. In their own territories the period of gestation is 79 days, 64 days, and 49, respectively. The parent dies immediately on the birth of a young *Yugala*. These persons are not the subjects of virtue and vice; they enjoy the reward of merits in a former state, which deserve nothing superior. Towards the four points of the com-

* A garus varies from 5 to 9 miles.

pass in the Salt sea, there are four cavities of the shape of a large water jar, descending a hundred thousand Yojanas; these are called Patala Khand, and form so many hells. The diameter of Jambudwipa is rated at a hundred thousand Yojanas, as is done by the Brahmans, but, as the Jains have only two seas and three continents, it was necessary to maintain their ground in the race of absurd exaggeration, begun with the Brahmans, to have a second Yojana, which they make 1,000 Kos, making the diameter of Jambudwipa 320 millions of miles. The width of the Salt sea encircling it, is double that amount; Dhataki Khanda, the next continent albeit, is double that again; the freshwater sea double that; and the last continent, Pushkara Dwipa, is double that, or 16 lakhs of sacred Yojanas, making the diameter of the whole terrestrial circle little short of two thousand millions of miles, just however one half of the computations of the Bhagavat. As the Bhagavat is the latest of all the Puranas, the same total was likely formed without any regard to the different items, to get beyond the Jains, as they by the innovation of the sacred Yojana had got before the ancient Brahmans. Immense however as these figures are, the earth in which we live and the system to which we belong, is but one of an infinite number of Chakravali, which occupy space. The Jains, having no infinite deity or soul of the world, like the Brahmans, satisfy the aspirations of the human mind, as far as such systems can satisfy, by an infinite universe. Their geographical scheme was at first apparently not very complicated, and such as might satisfy the unscientific minds of those in Upper India, who had heard of a Salt sea to the south, and of mountains and vast fresh water lakes to the north of the Himalayas; but it is vain to look into their books for any definite information relative to any distant locality, though patient research might, from this source, throw some light on the internal Geography of India.

ART. XI.—*Desiderata, relative to Thibet and Central Asia, in a series of questions, proposed by the Bombay Branch Asiatic Society, to the Members of the Embassy proceeding to the Frontiers of Chinese Tartary.*

On the following communication, from the Foreign Secretary to the Government of India, being received by the Bombay Branch Asiatic Society,

a draft of *desiderata*, relative to Thibet and Central Asia, was made and ordered to be forwarded to Mr. Elliot, in reply to his letter; of which a copy was also communicated to the Bombay Geographical Society, with a request to know if its Members had any questions to propose to the Mission. The reply from the Secretary of the Geographical Society, containing suggestions on certain points, to which the attention of Members of the Mission might be usefully directed, was accompanied by a letter from Mr. Chambers of Edinburgh. The latter, in reference to a paper on *ancient Beaches*, read by him at the Oxford Meeting of the British Association, sought for further information and facts, on the relative levels of sea and land over large portions of the Globe, similar to those from which his deductions had been made. The Bombay Society, at its Monthly Meeting of the 9th September 1847, resolved that both these communications should be forwarded to Mr. Elliot; and the *desiderata*, or notes of information supplied for the use of the Thibet Mission, are here published with a view that they may be serviceable to the researches of future travellers.

Simla, July 8th, 1847.

DEAR SIR,—As a Mission is about to start to the frontier of Chinese Tartary, I shall be glad to learn if there is any question of literary or scientific interest, which you would wish its Members to make the subject of their investigation.

A Barometer and a few Magnetical and other Philosophical Instruments accompany the Mission, which will consist of Captain Cunningham, Dr. T. Thompson, and Lieutenant Strachey; and to such careful and intelligent observers may safely be entrusted any enquiry your learned Society may wish them to prosecute.

I remain,

Dear Sir,

Your most obedient Servant,

(Signed) H. M. ELLIOT,

Foreign Secy. to the Govt. of India.

To

The Secretary of the

Branch Asiatic Society,

Bombay.

The letter from the Foreign Secretary to the Government of India, now submitted to the Society, not informing us of the proposed route by which Captain Cunningham and the Mission intend to visit the frontiers of Chinese Tartary, a letter has been accordingly written to Mr. Elliot, requesting he will kindly intimate the line of route likely to be followed.

In order to prevent delay, and in anticipation of Mr. Elliot's reply, the following draft of a series of questions, on the *Orography*, *Hydrography*, *Ethnology*, and *Archæology* of Central Asia, can be forwarded to the Members of the Mission. The Society have reason to gratefully acknowledge this flattering reference made to it by order of the Governor General, and ought cheerfully to respond to this call by sending a catalogue of *desiderata*, on various points of investigation, relative to a portion of the earth now little known, but of great interest; such being connected, as Humboldt observes, with ideas of an extraordinary configuration of the surface, and being as it were the cradle of those primitive races of mankind, which have successively overspread and barbarized Europe.

The Mission may follow either the *Western* or *Eastern* route to the frontiers of Chinese Tartary; but many of the subjects deserving of attention, and requiring investigation, would of course be somewhat different, according as its Members selected one or the other. If the former, Captain Cunningham will proceed I suppose from Kashmir to Lei or Ladak, and thence going along the banks of the river *Shayuk*, or northern branch of the Indus, will pass the *Karakorum* mountains, to Yarghien or Yarkand, Kashgar, and *Ili* or *Gulja*, the new Head Quarters of the Chinese Military Government, to which are subject the Mahomedan cities of Yarkand, Kashgar, Yengi-Hissar, Aksu, Ili, Ooch-Tur-fan, Kooch-Tur-fan, (or Hami), Gumma, and Lop. If he intends to pursue the latter, he will penetrate into Eastern Thibet, by the pass of *Takiakoot*, on the eastern side of Kailas, or will follow the route already traversed by Turner, from the northeast frontier of Bengal, by way of Murichom, Tassisudon, and Dakka Je-ung, to Teshoo-Loomboo and Lhassa, the residence of the Grand Lama.

Under the supposition that either route may be taken, the following are some of the questions which the Society propose as subjects of research for Members of the Mission.

Orography and Hydrography.

1.

What is the geognostical structure and highest elevation of the *Kuenlun* mountain range, which separates Thibet from the western portion of Chinese Tartary, including the territories of Yarkand and Kashgar?

The Karakorum mountains, from which the Shayuk river has its source, form part of the Kuenlun range, and give origin also, on the opposite or northern declivity, to the rivers Karakash, and Yarang-Kash. These being joined by the *Serakol* river, of which a large branch flows from the *Karakol* lake, in the Bolor Tagh cross range of mountains, become then the river of Yarkand; which, after receiving two chief streams from Khoten, disembogues itself, on the eastward, in lake Lop, considered in the time of Marco Polo to be within the limits of Eastern Turkistan. The intermediate desert, from Kashgar to lake Lop, appears to have been anciently occupied by the *Yoghgr-Ghoz*, a tribe of Turkish Nomades, frequently mentioned by the Arab Geographers, and who became early acquainted with the use of letters and the *Aigure* Alphabet, which is now generally used both among the *Turkish* and *Mongolian tribes*. This country, formerly designated on the maps as *Little Bukharia*, and more correctly known as *Eastern Turkistan*, is now, without much attention to accuracy or the origin of its tribes, and simply from having become subject of late years to the Chinese Empire, reckoned part of Chinese Tartary.

II.

What is the breadth and elevation of the Bolor Tagh mountain range, from southwest to northeast, at that part forming the water-shed between the *Sir-i-kol* lake, or sources of the Oxus westward, and the *Kara-kol* lake eastward, which gives origin to the northern branch of the Yarkand river?

The Bolor Tagh, according to Humboldt, is that mountain range parallel to the Meridian, extending from 32½° north to 45°, which intersects the Himalaya, the Kuenlun, and the Tien-shan, to the parallel of 45½° north, and to the extent of nearly 780 miles. The culminating points of the Bolor, which is composed of a number of chains nearly parallel, are supposed to exceed 18,000 feet, and are situated between 35° and 40° north. Lieutenant Wood, who reached the Sir-i-kol lake on the 19th of February 1838, places it in 37° 27′ north, and 73° 40′ east, and estimates its elevation to be 15,600 feet; above which the surrounding mountains, covered with perpetual snow, rose 3,500 feet.

III.

What are the names of the passes, and nature of the roads running across the Bolor Tagh mountains?

Three great passes are supposed to cross this mountain range. The two most northerly are those to Kashgar. One of them, in 1557, was described to Jenkinson as a journey of 41 days from Bokhara, by way of Tash-kand and Khojend, along the banks of the Sihon, or Jaxartes. The same route appears to have been followed, in A. D. 1780, by a Russian Officer named Czernechef, who went from Khojend to Kokan, Merghilan, Chihal-situn or Takhti-Sulimun, (now called Oosh,) by some lead mines and the entrance of the plains eastward, to Kashgar. Meer Izzet Ullah, in returning from Kashgar to Kokan, reversed this route, having followed west by north for 98 hours the course of the Kashgar river, *(or northern branch of the Yaman-Yar,)* which has its source at Koksu, near the pass called *Darwaza Dawan Tezek*, or valley gate of Tezek. Westward of this are the streams which unite to form the *Sir* or *Sihon*. Meer Izzet Ullah describes the road, leading from the top of this pass, to be at first west by south in a narrow valley, and then along the skirts of the mountain Tezek to the town of *Irchelak*, for a distance of 16 hours. From Irchelak a road is said to run south 3 or 4 days journey to the Sir-i-kol or northern branch of the Yarkand river.

The second pass to Kashgar follows the course of the Oxus, and is the same as that called in Mr. Elphinstone's Kabul the pass of Chiltung: from which two roads, to the left and right, lead respectively to Kashgar and Yarkand. Instead therefore of three passes by which the traveller is conducted across the Bolor Tagh mountains, or rather the *plateau of Pamir*, there are more correctly speaking only two; of which the first, along the Oxus, was taken by Marco Polo, and the latter by Goez (A. D. 1603). This has been more recently traced in part, by Lieutenant Wood of the Indian Navy, who, in his journey to the sources of the Oxus, describes the road, from the latitude of Issar 37° 02′ 10″ north, as running along the stream of the Oxus by the Darah or valley of the Sir-i-kol, which is divided, at Issar, from the Darah of Mastuch, conducting the traveller into the district of Chitral.

Marco Polo proceeded from Balkh to Taikan or Talkan, thence ascended the mountain region of Balashan (Badakshan;) appears to have

crossed the Tokeba or river of Faizabad, and to have then followed the course of the Oxus to the elevated plain of Pamir; across which he journeyed for 12 days, before arriving at the region of Beloro, (Belor-Tagh), consisting of vast mountains with intermediate valleys; and thence, proceeded to Kashgar and Yarkand. Goez also travelled for 20 days in a narrow track, overhanging the Oxus, before arriving at Sarchil, (Sarikol); and from thence went in two days to that part of the mountains covered with perpetual snow. He was then six days in crossing the southern portion of the plateau of Pamir, and was twenty days more in travelling to Yarkand by a very bad road. The Geography of these parts requires further elucidation as to the number of passes which lead in various directions. We have also as yet only approximations of the mean height of the *plateaux* of Ladak and the three Thibets.

IV.

What is the nature and length of the road said to lead across the mountains which separate the district of Rodokh, in Nari or Western Thibet, from the district of Khoten in Eastern Turkistan?

Thibet is the vast and mountainous tract of country between 73° and 98° east longitude, from Greenwich, and 27° 38° north latitude, inclusive of Beltistan (or Little Thibet,) to the frontier of China eastward, where its southeast boundary is little known, and is supposed to be inhabited by numerous Nomade hordes, speaking corrupt dialects of the Thibetan language. Nari, or Western Thibet, has, through the investigations of Gerard, Moorcroft, and others, become more familiar to us, though there be much still in this part of the country for the investigation of travellers. An extensive trade was formerly carried on between Khoten, (now Elchi,) and Hindoostan; and a royal road from Gardokh and Rodokh, in the eastern part of Nari, is said to have led to Khoten and other districts of Eastern Turkistan; but the present state of the route, and the direction of the mountains over which it passes, are worthy the attention of the Mission, as being little known at present. Humbolt thinks that the water shed, which here, to the eastward of the sacred lakes *Manasa* and *Rowana-hrada*, separates the sources of the Indus, the Sutlej, and the Dzanghe-tchou, is nearly 79° 35′ of east longitude from Paris, and in north latitude about 31° 56′. It must be considerably more to the eastward, however, as this is nearly the correct

position of the high ridge, which, running from northeast to southwest, separates the vallies of the Indus and Sutlej.

V.

What is the highest elevation of the Kantesi or Kailas peak of the Himalaya range, which gives origin to the branches of the Sinh-khabab river, or southeast branch of the Indus, and divides its source from those of the Sutlej, and the Yaroo Sanpoo river, supposed to have its source in the same lofty mountain range?

The peak called in Thibetan *Tesé*, and *Kailasa* in Sanskrit, situated about 81° east longitude and 31° north latitude, is supposed to be the mutual boundary of Western and Middle Thibet, the last of which is generally called *Pot* and *U-tsang*, the capitals of which are *Lhassa* and *Zhikatse*. Eastern Thibet or *Kham-yul*, is bounded on the north by the countries of the Turks and Mongols, called by the Thibetans *Hor* and *Sokpo*. The greater number of the tribes inhabiting this part of Thibet, seem more nearly allied to the Mongolian than the Turkish races of men. The determination of this question as to the highest elevation of the Kailasa peak, with the elevation and direction also of other mountain ranges, which divide Thibet into various districts, is a subject requiring elucidation.

VI.

Is the Yaroo Sanpoo, the great river of Southeastern Thibet, the same as the Irawaddi or Ava river, as supposed by D'Anville and Klaproth; or is it the Brahmaputra, according to the opinion of Major Rennell?

Humbolt expresses himself doubtingly of the indentification of the Yaroo Sanpoo, or Dzangbo-tchou, with the Brahmaputra; and though the probabilities seem to be in favor of Major Rennell's opinion, as opposed to that of Klaproth, the subject of this question is a yet undecided point.

VII.

What are the traces of ancient Volcanic revolutions throughout the region of Central Asia, and are the fossil bones of the elephant and rhinoceros found here as in Siberia?

Three eminent Russian Mathematicians, Messrs. Tuss, Savitch, and and Sabler, have, by independent trigonometrical levellings, determined

the long pending geographical question of the *depression* of the Caspian, which is now ascertained to be only 83, 6 English feet below the level of the Black Sea and Mediterranean. This seems rather unfavorable to the soundness of Humboldt's opinion, that this inland sea may be considered, in a Geological point of view, as a great *Crater*, connected with the volcanic elevation of the plateau of Persia, and the chain of Hindukush; if not with the up-heavement of that which is vaguely and incorrectly named the plateau of Central Asia. We are but slightly informed of the state of *ancient volcanoes*, and others lately in a state of activity, which have been met with in this great country; and the tracts of volcanic territory, including the mountains of Peshan, Houtcheou, Oureumptsi, Kobok, and Aral-tonhe, and others not yet brought to notice, require to be better described and known.

VIII.

Do the rivers or mountains of Thibet furnish gold, and what are the other mineral productions of the country?

In Western Thibet, the mountains near *Gardokh*, or *Gortope*, are said to be rich in gold and mineral matter; and the sandy beds of several of the rivers of the country are known to contain grains of gold, which is also said to be disseminated, and in masses, through the *quartz* and other rocks of this country. Mines of lead, iron, and copper, are also said to occur, along with mines of mercury, the ore being cinnabar: all of which subjects will of course claim the attention of the Mission.

IX.

Does any great river flow out of lake Manasarowar?

Geographers are yet sceptical of the result of Mr. Moorcroft's examination of this lake, that no streams of any consequence, and none whatever on the northern, western, or southern sides, issue out of *Manasaroswar*. Further evidence is wanting to decide the correctness of Moorcroft's opinion.

X.

Is there a mountain chain on the Northern frontier of Eastern Thibet, running parallel to the Yaroo Sanpoo river; or are the mountains in this

quarter detached groups, admitting the highland of Eastern Thibet to pass gradually into the plateau and desert of Central Asia, possessed by the Kalmuks and Mongols?

The country, on the north and east, intervening between Thibet and the edge of the great sandy desert of *Shamo* and *Kobi*, is only known to us by vague report. From the prevalence however of lakes in these tracts, and the reputed origin of rivers of magnitude, such as the Hoang-Ho, which finds its way to the Eastern sea, there is reason to believe that a bifurcation of the Kuenlun range takes place far to the East, running along the southern edge of the desert, and that a hilly tract of country divides Thibet from the Great Desert.

XI.

If there be a mountain chain on the Northern frontier of Thibet, is it a continuation of the Kuenlun range, or an extension of the Kantesi and Kailasa peaks of the Himalaya?

This question naturally follows from the former, with a view that a definite account of the system of mountain ranges, in these parts, may be obtained for Geography: for our present maps of the country are characterized by a blissful ignorance of this matter, and Humbolt distinguishes the tract as *Terra Incognita*.

ETHNOLOGY AND ARCHAEOLOGY.

XII.

What are the differencies of Ethnological physical character and features between the Thibetan tribes of Ladak and Lhassa, and is there any reason for believing that the people of Nari, or Western Thibet, belong to the Turkish race, or that the Thibetans proper, and Bhutias, are of the Mongulian family?

The Thibetans appear, as far as we may learn from their language and history, to be of mixed origin. The Western, or those of Ladak, are the descendants of the *Yeutchi, Indo-Scythians*, or *Sakas*, incorporated with the Turkish tribes of the *Hioung-Nou*; and the Eastern Thibetans, or those of *U-tsang* and *K'ham-gul*, are said to have sprung from the *Khiang*, a yet wandering horde of savages in the fourth century of the Christian era; who, on being united with the *Thoufan* about A. D.

632, became an united people, and on adopting the *Bauddha* religion with its Sanskrit literature, soon after became conspicuous among the nations of Central Asia. If this opinion of the mixed origin of the Thibetans be true, it will probably be supported by the affinities of the Thibetan language being found cognate with the dialects of Turkistan and Kashmir, an opinion by the way which has in some measure received the sanction of Professor Horace Wilson. Such affinities can, however, only be looked for from a comparison of the *Jaghatai Turki* with the several dialects of Thibet.

XIII.

In what respect does the *Jaghatai Turki*, spoken at Yarkand and Kashgar, differ from the modern dialect of the same language now in use at Constantinople?

The modern *Osmanli*, spoken at Constantinople, is a very mixed dialect, which has adopted many Arabic and Persian words, with a large proportion also of Greek and Italian; while the *Jaghatai Turki*, in use among the *Usbeks* and the tribes of Khwarism, is a more pure and original language, of which the grammatical peculiarities and affinities have not, as far as I know, been made the subject of investigation by any modern Philologist. The Jaghatai Literature is said to be rich in works of Historical interest; of which those best known to us are the important histories of the Mongols by Rashid-ad-din, and of Jhengiz Khan by the Wazir Ala-ad-din; taken it is said from earlier Annals, written in the language of the Ouigours.

XIV.

What are the affinities of the Thibetan dialects, spoken by the *Brok-pa*, or *Hor-pa*, (remnants of supposed ancient Turkish tribes, living in the deserts north west of Lhassa) with the dialects of the two Turkish tribes of *Usbek* and *Khirgis*?

A more extensive comparison than has yet been made of these dialects is requisite before an opinion can be formed of how far Thibetan, and particularly its Western dialects, have any cognate affinities with the Turkish language.

XV.

Is there any good foundation for the opinion of Klaproth that the

Usbeks are the remains of the Ouigours or Aigures? And is there any tradition among them as to the period when the Ouigour alphabet, (known to be of Syrian origin,) was adopted by them?

According to Remusat and Klaproth the most ancient Turkish people, of which history makes mention, are the Hiong-nou, who possessed the original country of the Mongols, and were the ancestors of all the Turkish tribes. Among these the *Thou-khieu*, or Turks of the Altai, having obtained the superiority, and founded a vast Empire, about A. D. 552, assumed the national designation of *Thou-men*, from their first successful leader, who took to himself the title of *Il-khan*, or as written in Greek letters, on that series of coins belonging to him, *Alonkeno*, an apparent Syriac title derived from *Aloho deity* —and *Kohin*, priest or diviner. It is just possible that the latter part of the word *keno* may be meant for the Tartar word *Ken* or *Kun*, signifying the sun; and this supposition becomes more probable from our finding, on the reverse of these coins, the word AOH *loeh*, with symbols of the fire worship; which seems to be either the *Anamese* word *lua* signifying fire, or the Thibetan *Le* or *Lowa*, the appellation for the moon. The coins to which reference is here made will be found in Prinsep's Journal vol. v. pl. ii, fig. 17 and pl. xlvi, fig. 12. The *Il-khan Thou-men* was succeeded by his son *Ishi-khan*, who transmitted his kingdom to his brother, called by the Chinese *Ti-theou-pou-li Khan*, who reigned under the title of *Mouhan Khan*, and is called by the Byzantine Authors *Dizaboul*, to whom Justin the II, in A. D. 569, sent his Ambassador Zemarkh. From this embassy we become acquainted with the fact of this nation of Turks having, at this early period, adopted the Ouigour Alphabet, in which were written the letters of congratulation to the Emperor, who had them explained to him, from the Scythian language and writing, by means of an Interpreter. (Corpus Scriptorum Historiæ Byzantinæ e excerpta e Menandri Historia fol. 296). The whole of the Indo-Scythian coins, bearing the name of *Kenorano*, belong in all probability to this very *Mouhan Khan*, called *Ken-khan* by the Persian Historians of the Turks. The *Thou-men* Turks, being occupied with constant wars with the powerful Chinese dynasty of *Thang*, became greatly weakened and divided among themselves, so as to give the *Si-yan-tho* and the *Hoei-he* an opportunity of completely destroying their power about A. D. 744, and of founding a new Empire on their ruin. The language of the latter has

been declared to be the Oriental Turkish, or Jaghatai dialect, spoken in the greatest purity by the Usbeks, who appear to be the descendants of *Hoei-he*, and to have established themselves as Nomades in *Khiva*, *Ferghana*, and *Kokan*, about the beginning of the sixteenth century.

XVI.

On the Indo-Scythian Coins of *Kenorano* there are apparently corrupted Syrian titles written in Greek letters, and as the Nestorians had established themselves at *Mere-Shah-jehan* in A. D. 410, and had penetrated into Tartary so early as A. D. 636, is there reason for supposing that the *Thou-men Turks* obtained the Ouigour alphabet from these Christian sectaries along with the name of Ouigour?

The appellation Ouigour is by the Persians more correctly written ایغور, *Aighur* or *Ighur*; and has like the alphabet I think a Syriac or Nestorian origin.—This will probably be found in the Hebrew *Agur*, which Gesenius thinks may, like the word *Koheleth*, signify one of the assembly of wise men; a most appropriate appellation certainly for those who had introduced a knowledge of letters and writing among the rude savage tribes of Turkish and Tartar Nomades. This derivation too seems more probable, as the Chaldee *Igareth* signifies a Royal epistle or edict, sent by a public Courier and the same word *nammated* in Persian عگرہ *Angarah*, signifying a narrative of facts or journal.

XVII.

Does the language of Thibet approach in Syntax and Grammatical form the dialects of the Mongol hordes, and of others inhabiting the country and belonging to the Indo-Chinese race; or does this language constitute a distinct class from either the Turkish, Mongol, or Chinese branches?

XVIII.

At what period of the Christian era did the *Sangayanas*, or Bauddha Missions, from India to Thibet and Eastern Turkistan, carry with them into these countries the Prakrit alphabet of the Indian Cave Temples, along with the religion and literature of the people who formed them?

The Chronicle of Thibet relates that the Bauddha religion was introduced into that country A. D. 60, and that some of the most important Missions from India which established the national belief, took place in A. D. 225. Monsieur Remusat has endeavoured to shew that though this may be generally true of the people of Nari or Western Thibet, Ladak, and Eastern Turkistan, it is not so of the greater part of the nation, particularly the inhabitants of the eastern districts of Thibet, who remained in a state of ignorance till the beginning of the seventh century of our era, when the principles of Buddhism, eliminated and discussed in Sanskrit, appear to have been introduced from India.

XIX.

When was the religion of Bhuddha introduced into the district of Khoten, north of the *Kuenlun*; and what is the present state of the priests and followers of this faith, who are said to be numerous in that country?

M. Abul Remusat acquaints us with the important discovery that the language spoken at *Khoten*, before the Christian era, was *Sanskrit*, or at least *Prakrit*, a colloquial dialect of that learned tongue, and called *Fan* in the Chinese historical accounts. It was at least a dialect of the Arian family of languages, spoken by the *Saces* of *Casia* or Kashgar, and of *Bylta* or *Little Thibet*. The known existence of a colloquial medium of intercourse belonging to the Sanskrit class of languages tends to confirm *Masudi's* narrative, that *Nausherwan* the Great, after having killed the king *Akhshawan*, carried into Persia the original of the *Kelila Damna*. It has been already said, in the previous question, that the Bauddha religion was introduced into the country about A. D. 60; but there is reason to believe that the alphabet in which the Thibetan dialect was then written, a modification doubtless of the Indian-Cave alphabet, had been used in these countries at least 60 years B. C.

XX.

If there be any ancient books of the Bauddha religion met with in Khoten, what are the language and character in which they are written?

XXI.

Are there any works of value, written in the *Ouigour* alphabet or in *Jaghatai Turki*, relative to the history of the country to be met with in Eastern Turkistan?

XXII.

Are there any sculptured stones or inscriptions in an unknown character and of supposed ancient date, to be met with in the countries of Thibet and Eastern Turkistan?

XXIII.

Do any ancient *tumuli*, like the topes of Afghanistan and the Panjaub exist in these countries, and have any instruments of iron, or vessels of gold and silver ever been found in them?

Since the draft of these questions was drawn up, another communication has been received from Mr. Elliot informing the Society that the precise route, taken by the Mission from India, will be along the upper part of the valley of the Sutlej near its origin; on which they will come after passing by the *Niti Ghat*, over the high southern ranges of the Himalaya mountains, at an elevation of 14,544 feet above the level of the Ocean, and about the 31st degree of north latitude and 80° of east longitude from Greenwich. They will then proceed across the Sutlej valley to the junction of its eastern branch (the river of Lau-zing) with the *Spiti* river, which is here flowing from the northward; and will thence proceed by the *Pauj kang* lake to the pass of the Karakorum mountains, over which a road leads to Yarkand; or they will follow the pass across the mountains from Rodokh to Khoten, where they are desired to winter, if possible; but if not so, they are to remain at Rodokh, on this side of the *Kuenlun*, or go on to Yarkand on the other. As soon as the season will admit of travelling, Captain Canningham is to explore the course of the Indus to *Gilghit*, and thence through the *Terra Incognita* of the *Dardu* country; and Lieut. Strachey will pass on through the district eastward of the *Sin-kha-bab* river, or eastern branch of the Indus to Gardokh and the *Manasaruca* lake, to which place he penetrated last year from *Kumaon* over the Himalayas. He may then follow the route into Eastern Thibet by the *La Ganskiel* pass, and is directed to explore

from thence the course of the *Sanpu*, ascertaining whether it be the river of *Ava*, or the *Dihaung*, which falls into the *Bramahputra*. Dr. Thompson is to investigate all the mineral treasures of our northern frontier. They are provided with Barometers, Thermometers, Sextants, Altitude and Azimuth Circles, Magnetical Instruments, and with whatever is in fact necessary for the extension of Geographical knowledge and the domain of science. The Members are prohibited from going into Independent Tartary, in order to prevent the possibility of any of those accidents befalling to the Mission, such as have already happened to those who preceded them in the field of exploration. The following may be proposed as general questions.

General Questions.

XXIV.

What is the present state of the trade between Kashmir and Yarkand? and what is the annual amount of the *Ambar* or pure silver, the wool of the shawl goat, tea, and silk, brought in exchange for shawls, white piece goods and leather?

XXV.

What is the Revenue of Khoten, and the state of the traffic between it and Yarkand?

A considerable annual amount of Mahomedan prayer silk clothes, satin paper, gold dust, raisins, and other things, are exported to Yarkand for copper-pots and leather.

XXVI.

Is there any export of broad cloth, brocades and copper, to the frontiers of China, or to the *Khanate* of *Kokan*, in return for tea, China ware, rhubarb, and salammoniac?

XXVII.

What is the present amount of the transit trade of Eastern Thibet, by the *La Gauskiel pass*, to Ladak and the Panjaub.

Large quantities of impure borax, shawl wool, gold and silver, are said to be brought by this route from China and Thibet.

ART. XII.—*Biographical Memoir of the late Major General Vans Kennedy.*—By JAMES BIRD, Esq.

The late Major General Vans Kennedy was the scion of an ancient family long resident in Ayrshire in Scotland, and connected with the noble house of Cassilis (or Ailsa), a branch generally admitted to be the chief of the race of Kennedy's, who came originally from Carrick, of which they afterwards were the Earls. Many of his family greatly distinguished themselves in the early wars both of France and Scotland, where they obtained high honors. The subject of the present memoir therefore naturally and proudly thought that "no ignoble blood flowed in his veins," and would occasionally say that "one would rather be the child of some body than of no body". He was well pleased also to remember that he was of a stock connected on his father's side, with the Earls of Eglintoun and Dumfries, and on his mother's side, with the Marquis of Annandale; and that while three descents in the days of Chivalry made a gentleman, he himself could number seven till his distinct genealogy became lost among the Lairds of Bargany.

The General's immediate progenitors, though less noble, were not however less respectable than the more remote part of his ancestry. His grandfather, a younger brother of the House of Bennan, a man of high character, made a considerable fortune by the sale of cattle, which were bred by himself, and by assisting country gentlemen in the management of their affairs. Through this he was enabled to purchase the estate of Pinmore in Ayrshire, which he left to his eldest son Mr. Kennedy, the father of the General and of Miss Grace Kennedy the Authoress of *Dunallan*, *Father Clement*, and other deservedly popular works.

Mr. Kennedy, to whom the estate of Pinmore descended and the father of the two children mentioned, who were destined to attain celebrity in the literary world, was himself a man of considerable talent, acquirements, and brilliant conversation, but of peculiarly retired habits, and of great negligence in his affairs; his wife was Miss Vans Agnew, the eldest daughter of John Vans of Barnbarrock, in the county of Wigton, who, having married his cousin the heiress of Agnew, became

the representative of that family and assumed its name. Mrs. Kennedy, remarkable for general information and for sincere and genuine piety, lived in the utmost seclusion at Pinmore, until she had become the mother of ten children, five sons and five daughters. Soon after this, Mr. Kennedy's affairs becoming embarrassed by the failure of the Ayr Bank, he was obliged to sell his property and move with his family to the vicinity of Edinburgh, where he resided until his death, which took place in the year 1790, leaving his admirable wife with the responsible charge of her five sons, three of whom were afterwards educated to professions in which they appear to have given promise of future eminence, but died early, a fourth died when a child, and Vans, the youngest, was left (the representative of the family) with five sisters, who afterwards evinced intellectual superiority by various publications.

Two years previous to Mr. Kennedy's removal to Edinburgh, his son Vans was born (1784), and after having been educated in the Edinburgh classes, was sent when twelve years of age to England, where he attended Dr. Dupré's Academy at Berkhamstead, along with his cousins, the sons of Robert Vans Agnew. Here he soon gave proofs of his studious disposition and ready apprehension, and having been soon after removed to Dr. Powell's establishment at Monmouth, made such rapid progress in his studies there, that Dr. Powell told his uncle he would be happy if he had an usher in his school so well qualified as young Kennedy. So much at this time was he attached to books and yet so indolently disposed, that Dr. Powell had great difficulty in making him join his companions at play to take the exercise necessary for preserving his health; still, though in general averse to join in the recreations of the other boys, he would sometimes exert himself in performing feats of strength, which however, were accomplished so awkwardly that they frequently excited the ridicule of his companions. Naturally of studious habits with an irritable temper he was not generally liked, though a favorite with many by whom he was found warm-hearted and amusing. The desire of distinction through the acquirement of languages formed his ruling passion, so much so that even his holidays were devoted to attaining a proficiency in French and Italian, and having but little facility in pronunciation for acquiring the colloquial parts, his chief attention was directed to their grammatical construction and philological peculiarities.

On the completion of his fourteenth year, having hopes of an appointment for India, he returned to Edinburgh to spend the last twelve months of his stay in Britain with his mother and sisters. While with them, he still continued zealously to prosecute his studies, and having through the influence of Mrs. Crawford Bruce, (a lady much attached to his mother) obtained a cadetship, he sailed for Bombay in 1800, where, on his arrival, he immediately entered upon the distinguished literary career destined for him to pursue. Soon after reaching Bombay he was employed with his Corps, (the 1st Battalion 2nd Grenadiers) in a campaign against the people of Malabar and Cottiote, where he was wounded in the neck, and ever afterwards suffered from the effects of that injury. The nature of the service in which he was then engaged and the want of books prevented his following the natural bent of his inclinations to the extent that he wished, but unfavorably even as he was then situated, he continued to devote his leisure hours to the study of the languages and literature of the East and, as it appears, acquired a vernacular knowledge of *Malayálim*, the dialect of the province in which he was serving.

On returning from the Malabar Coast, Lieut. Kennedy was sent to the Dekhan, where in January 1807, he was appointed Persian Interpreter to Col. Wallace, then Commanding the Peshwa's Subsidiary Force at Seroor, and though little acquainted at this time with the *Persian* language, he soon acquired such a proficiency in reading it as well as *Arabic*, that he is said to have translated with wonderful fluency the Persian *Shikastah* letters, written to his Superior from the Native Courts and by the Jaghirdárs of the country. At this period, Col. Close, who was Political Agent at the Peshwa's Court and resided at the Sangam near Poona, was particularly fond of having Vans Kennedy at the Residency, and of discussing metaphysical questions with him. Lieut. Frissell, a nephew of Col. Wilks, another young man of much promise in those days, used to join in these colloquies. Sir James Mackintosh frequently spoke with the greatest respect of Col. Close's powers of argument, and of the ingenuity and indomitable hardihood of Kennedy. It is besides no insignificant testimony to Gen. (then Lieut.) Kennedy's talents and literary acquirements to state, that the Hon'ble Mountstuart Elphinstone who succeeded Col. Close, declared that at that time he knew no man with more varied and extensive

learning than the subject of the present memoir. He had not merely gleaned superficially from the authors he had studied, but had perused their works thoroughly and critically. He had read, for instance, all *Firdausi*, several of the *Puranas*, and many others works of antiquity. In study he was indeed indefatigable, and spared no expense on books, MSS. and Moonshis, while during the early part of his life he is said to have read for sixteen hours a day. He received no visitors and rarely went out, so that his presence in public was regarded with astonishment and curiosity. While he continued Persian Interpreter of the Seroor Subsidiary Force under four successive Commanding Officers, he was occasionally nominated to the duties of Deputy Judge Advocate General of Courts Martial assembled in the Dekhan.

Just preceding General (then Captain) Kennedy's appointment in 1817 to the Office of Judge Advocate General of the Bombay Army, in succession to Major Lewis, he became a member of the *Bombay Branch of the Royal Asiatic Society*, then the *Literary Society of Bombay*, when the well known Translator of the Emperor Baber's interesting Memoirs and the Author of other learned Essays, was the Secretary; and it is no mean proof of the estimation in which his abilities and extent of learning were then held by the members of the Society, to find, that at the Anniversary Meeting of that year he was unanimously elected one of its *Vice-Presidents*. About the same time he read at one of the Society's Meetings his "Essay on Persian Literature", which, though confessedly imperfect and of confined scope, gives a good general idea of the subject.

At the Society's Aniversary Meeting of 1819 Captain Kennedy took charge of the duties of Secretary, while by a most fortunate coincidence Mountstuart Elphinstone became its President. About this time the two first volumes of the Society's Transactions, (which have since become standard works in the literary institutions of Europe,) were published.

In 1825, Kennedy contributed several translations of the *Puranas* to the Quarterly Oriental Review, then published at Calcutta under the Editorship of the learned Director of the Royal Asiatic Society. The results of his labours in *Sanskrit* and other languages were published at home in 1828, under the title of "Researches into the Origin and Affinity of the Principal Languages of Europe and Asia"; and three years

after, his "Researches into the Nature and Affinity of Ancient and Hindu Mythology" appeared; it was the first publication of the kind derived from authentic and original resources. His reputation throughout Europe had now become established, and many subsequent contributions to periodical works both in India and England only confirmed the opinion already formed by the public, of the great extent and diversity of his knowledge. His oriental learning was profound and accurate, especially in the Sanskrit range, being particularly well read in the religion, philosophy, and law of the Mahommedans and Hindus, and that too in the writings of the *Vedanta School* pertaining to the latter. For the religion of the Parsis however, and the ancient books of that sect, he had no great respect. He often contributed to the Asiatic Journal, chiefly on subjects connected with Oriental Literature and to the Newspapers on matters regarding Military and Civil law. To the end of his days, he still kept up the character of a student, devoting his whole energy and thoughts to the study of Metaphysics and Philology, having, as he said, become tired of Theology, a subject to which in former days he had given much attention. He took a great interest in the prosperity of the Bombay Branch of the Royal Asiatic Society and was ever ready to volunteer his services for its support and improvement.

Those who were not intimately acquainted with General Vans Kennedy, would not conceive that under so cold an exterior, could exist such powerful feelings of affection and humanity as he possessed. Without the least regard to himself, he was ever ready to assist with all his might any one whom he believed to be the victim of injustice or oppression. He was careless of money and comfort, and was so liberal with what he had, that he was continually involved in pecuniary difficulties. At the same time he was most regular and punctual in his habits. Rising early, he first took exercise in his garden, then read the papers of the day and periodicals until breakfast time (about 8 A. M.); after this until dinner (about 4 P. M.) he engaged himself in his official duties and in attending to the more laborious part of his studies, devoting the evening to reading of a lighter character. His diet was abstinent and his hour of retirement early, and his health so good that he has been heard to say that he did not require to see a medical man for years together.

The duties of Judge Advocate General of the Bombay Army were

discharged by him up to the year 1835, when some misunderstanding having arisen between Sir John Keane and himself, he was removed from the appointment; but subsequently, on a Memorial to the Hon'ble the Court of Directors, was nominated Oriental Translator to Government, the duties of which Office he continued to perform up to the time of his death, which took place at his house in Bombay on the 29th of Dec. 1846. On the following morning his remains, attended to the grave by the principal people of this island, were interred in the European Burial Ground at Backbay with the Military Honors due to his rank.*

The following is a list of General Vans Kennedy's publications.

An Essay on Persian Literature.—*Transactions of the Lit. Society of Bombay*, Vol. II. 1819, *London*.

Remarks on the Chronology of Persian History previous to the conquest of Persia by Alexander the Great.—*Ditto*.

Notice respecting the Religion introduced into India by the Emperor Akbar.—*Ditto*.

Remarks on the State of Persia from the Arbela in A. C. 331 to the Rise of Ardeshir Babegan in A. D. 226.—*Ditto*, Vol. III.

Remarks on the 6th & 7th Chap. of Mill's History of British India, respecting the Religion and Manners of the Hindus.—*Ditto*.

Remarks on the Character of Muhammad.—*Ditto*.

A Dictionary of Maratha and English, and English and Maratha.—225 *p. Foolscap fol. Bombay*, 1824.

A Translation of the Legend of Jalandhara, 2 Parts.—*Quarterly Oriental Review*, Vol. IV. & V. 1825-26.

Researches into the Origin and Affinity of the principal Languages of Asia and Europe.—324 *p. 4to. London*, 1828.

An Abstract of Mohammedan Law.—*Journal R. A. S.* Vol. II. 1835.

Researches into the Nature and Affinity of Ancient and Hindoo Mythology.—494 *p. 4to. London*, 1831.

* See the Resolutions passed by the Bombay Branch of the Royal Asiatic Society on the occurrence of Major Gen. Kennedy's death, in this No. of the Journal. Art. XV.—*Extracts from the Proceedings &c. for* January 14th and February 4th 1847.

Remarks on the Vedanta System.—*Transactions of Royal Asiatic Society*, Vol. III. 1834.

A Treatise on the Principles and Practice of Military Law—378 *p.* 8vo. *Bombay*, 1832. *2nd & Revised Edi.* 1847.

Five Letters on the Puraus, with reference to the views of H. H. Wilson Esq.—*Asiatic Journal*, Vol. XXII. XXIII. & XXIV. 1834–40.

He is said also to have made a translation of the Diwan of Hafiz, but I believe it was never published.

*** For most of the facts on which the above sketch is founded I am indebted to Col. Ogilvie, and to C. J. Erskine Esq. C. S. whose father was an intimate friend of the deceased.

ART. XIII.—*Literary and Scientific Notices.*

The Society is indebted to the Editor of the *Journal of the Indian Archipelago* for Nos. 1 to 6 of that interesting Periodical. The Ethnology, Statistics, and Conchology of those interesting regions have met with able and laborious students in the contributors to this Journal. On the first of these subjects, besides some general remarks in No. 4, there is a long article in No 5 chiefly devoted to a history of the manners and customs of a rude tribe in the interior, called the *Binuas*. While another of these tribes, the *Bermuu* tribe, is perfectly atheistical, the *Binuas* are theists. The author hesitates as to whether their religious ideas are to be traced to the Hindus or Mahometans. If *Pirman*, the substitute for *Brahma*, the Supreme Being, were the only word where a connection could be discovered, we might remain undecided; but when we have *Dewadewa*, intercessors and mediators between man and the Supreme, and *Bumi* the earth, also an inferior divinity,—names which are used every where among the Hindus to this day in the same sense essentially as among the theists,—all our hesitation ceases.

The article on the Statistics of the Dutch settlements ought to shame some of us nearer home in regard to the way this subject has been neglected among ourselves, and the article on the *Conchology* of a region so rich in treasures of this kind, must be read with interest by all who love to survey the shining wonders of the deep.

The German Oriental Society.

A Society was formed under the above-mentioned name *(Deutsche Morgenländische Gesellschaft)* in October, 1845. It is under the especial superintendence of Professors Rodiger, Pott, Fleischer, and Brockhaus.

We are indebted to the courtesy of the Society for copies of the first Annual Report and the two first issues of their Journal.

The objects contemplated by this important Society are,

1. To collect MSS. and printed works, and productions of nature and art, connected with the East.
2. To publish, translate, and digest Oriental works.
3. To issue a periodical.
4. To support undertakings for extending our knowledge of the East.
5. To correspond with similar learned Societies and individuals.

The Journal of the Society *(Zeitschrift der Deutschen Morgenländischen Gesellschaft)* is to be issued four times a year. The well-known and valuable Journal edited by Prof. Lassen merges in the above, which is to enjoy the aid of the learned professor.

In the 1st No. of the *Zeitschrift*, we have a long article by Professor Ewald on a collection of Ethiopic MSS. sent by Dr. Krapf, several of which were hitherto unknown. This is followed by an article on "The nations and languages southward of Ethiopia", by the same distinguished scholar. Another long and interesting article is on "Brahma and the Brahmans", by Dr. R. Roth.

In the 2nd No. we have the commencement of an eloquent and powerfully-written article by Professor Neumann, of Munich, on "Sinologists and their works," commencing with Dr. Morrison, to whom warm, although not undiscriminating, praise is given. Dr. Pruner of Cairo contributes a lively "Aphoristic sketch" on "the Negro". We have next the "Plan of a Colonial Commercial Establishment in the East Indian Archipelago," by Dr. Selberg, the *practical* character of which took us rather by surprise, and for which the Editors half apologise, while yet they express their strong desire for Germany to have "a direct and enduring connexion with the East". Other articles of interest are given. The whole concludes with a number of literary notices; of which one of the most im

portant for us in Bombay, is an announcement that Dr. F. Spiegel, already well known as a Persian scholar, is employed on the Zendavesta, and a Grammar of the Pazend.

We have among the advertisements in the *Zeitschrift*, an announcement of the Mahábhárata being about to appear in "a complete critical translation," by Theodor Goldstücker. This will be an important contribution to Oriental literature.

We have been thus somewhat minute in our notice of the "Journal of the German Oriental Society", as we cannot doubt it will prove one of the most important means we possess of Oriental investigation. Germany has done much in this cause, and seems preparing to do more.

The American Oriental Society.

We acknowledge with thanks the receipt of the 3rd No. of the Journal of this Society, which is for 1847. It contains a "Treatise on Arab Music", translated by the Rev. Eli Smith from a native work; "Notes on Arakan"; "Three chapters of Genesis in the Soonhelee language, by the Rev. Dr. Krapf", with an introduction by W. W. Greenough; Reviews of Mons. Burnouf's *Introduction à l' histoire du Bouddhisme Indien*," and of Lassen's *Indische Alterthumskunde*, both by Prof. E. E. Salisbury, of Newhaven. Subjoined are various literary Notices, the most important of which is a Statement of the progress hitherto made in the decypherment of the Himyaritic Inscriptions, with the Alphabets proposed by Fresnel, Gesenius, and Roediger.

The "American Oriental Society" has sustained a great loss in the death of its late learned President, John Pickering Esq., of Boston; but we rejoice to see that it is still carried on with zeal and ability.

Medical and Physical Society of Bombay.

No. VIII. of the *Transactions of the Medical and Physical Society of Bombay*.—In this No. we have observed some remarks by Assistant Surgeon Carter, on the Freshwater Sponges in the Tanks of Bombay. The Author states, that there are four distinct species to be met with; and after describing them specifically, alludes to their structure and animality.

In a subsequent communication to this Society, he observes, that in

his Notes published in the Journal to which we have alluded, he has confounded two species under the head No. 2, and that the bright green colored species there mentioned, is distinguished from all the rest by having a crust of double pointed smooth spicula round its seed-like bodies. He supposes this to be *Spongia lacustris* (Lin.), *Spongilla friabilis* (Lam.).

Further, he observes respecting the animality of the Freshwater Sponges, that the animals of which they are but a congeries, are identical with the infusorium *Proteus*. 1st because they are composed of a semi-transparent gelatinous matter. 2nd because this gelatinous matter is endowed with the power of altering its shape and of locomotion. 3rd because in it are seen transparent cells *(contracting vesicles)* of various diameters from 1-9000th part of an inch to a mere point, (which he formerly supposed to be sphinctral orifices) dilating and contracting themselves as in other animalcules. And 4th because this gelatinous matter is provided with greenish yellow granules moving with, and especially characteristic of both the *Proteus* and the animal of the sponge.

He regards the *Proteus* as being more active in changing its shape, &c. than the animals of the sponge when first torn from each other, from the habits of the former having been vagrant perhaps from the commencement, and its full development thereby having been unimpeded, and states, that the *Proteus* feeds upon its like as well as upon other matter, enclosing its food within its own substance after the manner of the *Hydra*.

While examining the transparent border of a portion of sponge growing from the seed-like bodies, he has observed the contracting vesicles distinctly, and a little within this, the animals themselves distinguishable, though amassed together and ever changing their form, but he does not appear to have ever seen them enclose an object within their substance after the manner of the *Proteus*.

In the development of the contents of the Sphorangia or seed-like bodies, he observes, that when the latter are opened under water in a watch-glass the transparent cells within them having been eliminated, swell and burst by imbibition *(endosmose)* of that fluid; and that then the true ova of the Sponge with which they are filled, spread themselves over the surface of the vessel. Each ovum appears, not to be globular or ovoid as he formerly supposed, but discoidal, very much resembling

in size and appearance the globules of the blood, it being only when they are turned on their edges that they appear ovoid. The red spot in their centre he also now thinks to be an optical illusion, while he has every reason to believe that the ovum retains its planiform state until its transparent vesicles and granules have become developed and the power of locomotion in it fully established.

ART. XIV.—*Report on the State of the Society's Museum* 1845.—BY A. B. ORLEBAR, M. A., *Secretary of the Museum Committee.*

The object of the following Report is to bring the state of the Museum before the notice of the public, for whose benefit the Society undertook to form it. It was originally instituted with the view that all classes might derive instruction from visiting it, and that all the Educational Establishments in this Island might share in its advantages; at the same time it was expected that all engaged in teaching, would join in supporting and improving it. That the Society's liberal design however, has not been generally understood is much to be feared, while it is hoped, that the present advanced state of its Museum when sufficiently made known, will prove that the laudable object for which it was instituted has not been disregarded, that it is attainable and that the collections only require to be a little increased and a little more attention given to their arrangement to render the Museum capable of affording all the information it was originally intended to convey.

During the past year the "Propositions" of 1840, relating to the Museum, have been steadily kept in view. They are the following;—

1st.—To make a general collection of such specimens in the various branches of Natural History, as would afford means of study to beginners and of comparison to students.

2nd.—To make such local collections from the Presidency and other places ordinarly visited by its residents as would fully exhibit the peculiarities in nature and art both of India and the neighbouring countries.

To effect the first purpose, the shells possessed by the Society were

arranged early in 1841 according to the system of Lammark: so that any person now by taking Lammark's *Histoire Naturalle* in hand, and comparing his descriptions with the labelled specimens, may obtain a knowledge of *Conchology* sufficiently accurate for any practical purpose.

During the past year, the collection of minerals generally has also been undergoing a systematic arrangement; the most difficult part has been accomplished, and had not the attention of your Secretary been drawn away to other parts of the Museum by the numerous donations made to it, it would have been completed some months back.

The Serpents, Fish, and Corals, as yet remain unarranged.

CONTRIBUTIONS TO THE MUSEUM.

Our collection of *Perim* fossils is very extensive, and although no additions have been made to it during the past year, yet there is no doubt, that if any member would apply himself to their examination, and arrangement, it would richly repay him for his trouble and end by inducing gentlemen who have the opportunity, to forward large supplies from the extensive fossilferous deposists which we now know to be continued on far beyond that little Island.

Our collection of specimens from *Cutch* is still small.

Sindh has contributed several fossils during the past year, and this division forms the richest part of our collection.

Dr. Spilsbury, Dr. Malcolmson, and Dr. Bradley, have also made us rich in fossils from the extinct lakes of *Central India*.

Our collection of *Granitic, Trap* and other *Plutonean* rocks with their minerals from all parts of India is very great, and during the past year has been increased by some valuable specimens from the *Trap formations*.

In addition to collections from *India*, we have been forming others from *Egypt, Arabia*, and the *Persian Gulf*.

Small local collections of Shells from the mainland of India and from Bombay Harbour, the Red Sea, Aden, and Zanzibar, are also under formation. It is hoped that a marine *fauna* of all these localities may soon be completed, to afford both a study to Naturalists who may visit us, and a valuable source of instruction and useful relaxation to those whose duties may afterwards lead them to the places from which the collections have been made.

The Society has resolved to confine its *Zoological collection* to the skeletons and less perishable parts of animals, as the difficulty of preserving the more delicate tissues is now too great to be overcome in a satisfactory manner. It will notwithstanding be thankful for all donations, as it proposes to send presents to Societies out of India, with the hope of being able to effect exchanges which may be generally advantageous to the Museum.

The antiquities of India do not yet occupy much room in the Museum. But one very valuable illustration of a Religion, whose remains are of the deepest interest to the students of Indian History, now occupies one of our cases, viz. the donation from Sir H. Pottinger of a set of figures exhibiting the punishments in the *Buddh Tartarus*, faithfully copied from a Chinese temple belonging to that persuasion.

ART. XV.—*Extracts from the Proceedings of the Society.*

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 3d of July, 1845.

Read and approved the minutes of the last meeting.

The following gentleman was proposed as a member of the Society, to be balloted for at its next meeting, viz. The Rev. A. Fraser, by John Peet, Esq., seconded by the Secretary.

Read a letter from R. Clarke, Esq., Honorary Secretary, Royal Asiatic Society, acknowledging the receipt of the *Yacna, Visparad*, and Nos. 1, to 7. of the Society's Journal.

Read a letter from Dr. Thomas Hodgkin to Manockjee Cursetjee, Esq., relative to the establishment in London of the *Philological and Ethnological Societies*, for the purpose of investigating the physical character, history, and present condition of the different nations and tribes of the human race; and requesting the co-operation in this learned task, *of all Societies and individuals in the East* capable of collecting and diffusing the requisite information. Dr. Hodgkin remarks, that although much has been done by learned men in the East and by others in Europe for the investigation of Asiatic History, the tribes and languages are yet so numerous and the obscurity of the subject so great,

that much remains to be done, which can only be effected by able workers in the country where the necessary enquiries can be satisfactorily conducted. The letter further makes allusion to Dr. Stevenson's *Essay on the Language of the Aboriginal Hindus*, published in No. III of the Society's Journal, and recommends the continuation and extension of the same subjects relative to the various tribes of India.

The following donations were laid on the table:

TO THE LIBRARY.

By the Honorable the Court of Directors of the East India Company. Lieut. Col. Edward Sabine's Magnetical and Meteorological Observations for the years 1840, 1841 and 1842, made at the Observatory of Toronto in Canada.

The Secretary then submitted a paper entitled, "The travels of *Kamal-ad-din Abd-al-Rizak* from Persia to India in A. D. 1442," containing an account of the then flourishing city of *Bijanagar*. Translated from the Persian of the Author in the *Matlaa-as-Sadein* and illustrated with notes by James Bird, Esq.

Resolved that the thanks of the Society be given for the donation and paper presented.

Notice of the following motions to be brought before the next meeting of the Society was given.

1st.—That the London, Edinburgh, and Dublin Philosophical Magazines and the Literary Gazette discontinued by the Society, be re-ordered from Home.

2nd.—That the resolution relative to the payment of subscriptions by newly elected members of the Society, carried at the meetings of the 27th March and 24th April 1839 be abrogated, and that Art. XXV of the Society's Rules be acted on, in order to simplify the collection of subscriptions and the accounts of the Society.

The meeting was then adjourned to Thursday the 14th of Aug. 1845.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 14th of August 1845.

The minutes of the last meeting were read and approved of.

The Rev. A. Fraser proposed at the last meeting, having been balloted for, was unanimously elected a member of the Society.

Professor Harkness intimated, that E. Lyon, Esq. who was proposed a member of the Society, having become aware of circumstances which would compel him very shortly to return to England, begged to withdraw his name.

H. Conybeare, Esq., proposed as a subscriber to the Library by the Rev. G. Pigott, seconded by the Secretary, was admitted agreeably to the Regulations.

The following gentlemen were proposed as members to be balloted for at the next meeting:—viz. Robert Burn, Esq., by John Smith, Esq. seconded by Dr. James Burnes, K. H., and H. Conybeare, Esq., proposed by Professor Harkness, seconded by Dr. James Burnes, K. H.

With reference to a note from Major General Kennedy, it was resolved, that directions be given to have the copies of the new Catalogue stitched and covered as originally ordered by General Kennedy, and that when ready they be forwarded to the Library, where they may be had on application to the Librarian, at Rs. 3½ each.

Proposed by Dr. James Burnes, K. H., seconded by P. W. LeGeyt, Esq. and unanimously carried:—

That the best thanks of the Society are due to Major General Vans Kennedy, for the ability and zeal with which he has so disinterestedly undertaken and executed the laborious task of preparing and carrying through the press, the Catalogue now on the Table.

The following donations were laid on the table.

To the Library.

A Dictionary of the Amharic Language in two parts, Amharic and English, and English and Amharic, by the Rev. C. W. Isenbergh.—Presented by the Author.

A Grammar of the Amharic language, by the Rev. C. W. Isenberg. Presented by the Author.

Adumbratio Historiæ Mundi Amharice, or a sketch of universal history in the Amharic language, by the Rev. C. W. Isenberg.—Presented by the Author.

Regni Dei in terris Historia Amharice, or History of the kingdom of

God in the Amharic language, by the Rev. C. W. Isenberg.—Presented by the Author.

A Vocabulary of the Galla language, compiled by the Rev. J. L. Krapf.—Presented by the Author.

St. Matthew's Gospel in the Galla tongue, translated by the Rev. J. L. Krapf.—Presented by the Author.

By the Medical Board under sanction of the Honorable the Governor in Council.—A Report on Small-pox and Vaccination in Bengal, 1844; and Medical Topography of the Northern Hyderabad and Nagpore Divisions, the Tenasserim Provinces and the Eastern Settlements.

By the Asiatic Society of Bengal.—A Dictionary of the Technical Terms of the Sufies, edited in the Arabic original by Dr. Aloys Sprenger, of the Bengal Medical Service.

Presented through Professor Harkness.—Seven Inscriptions collected at Kolapur by Bal G. Shastree, Esq., who has added an English translation of one, and various explanations and remarks in regard to the others.

Presented by Professor Orlebar.—A paper on the Geology of the Egyptian Desert.

The Secretary was directed to forward the thanks of the Society, for the different donations and papers, and the meeting was adjourned to Thursday the 11th of September, 1845.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 11th of September, 1845.

The minutes of the last meeting were read and approved of.

Robert Burn, Esq., and H. Conybeare, Esq., proposed as members of the Society at the last meeting, were balloted for and duly elected.

Jagunath Sunkersett, Esq. was proposed as a resident member of the Society, by W. Howard Esq. seconded by P. W. LeGeyt, Esq.

Read a letter from E. H. Townsend, Esq., Secretary to Government, accompanying a copy and translation of a list of Persian and Arabic Manuscripts at Bijapur; forwarded by Government for the information of the Society. In the collection are many rare works on Mahomedan Law, which are believed to be in a good state of preservation.

The following papers were read:—

1st. Notes on the Gara Tribe made during the survey of the south-east Coast of Arabia in 1844-45, by Assistant Surgeon H. J. Carter, of the Honorable Company's Surveying Brig *Palinurus*.

2nd. Extracts from a Journal kept during the survey of the Red Sea, by Capt. (then Lieutenant) Carless, I. N. Assistant Surveyor.

The thanks of the Society were unanimously voted to H. J. Carter, Esq., and to Capt. Carless for their interesting communications, which will appear in an early number of the Society's Journal.

The following donations were laid on the Table:

To the Library

From Government.—Report of the Board of Education for the year 1844, three copies.

From the Chamber of Commerce.—Report of the Bombay Chamber of Commerce for the third quarter of 1844-45.

To the Museum.

From Dr. Grierson, by Professor Orlebar,—some fossils collected in Sindh.

Thanks were ordered to be returned to the respective Donors, and the meeting was adjourned to Thursday the 9th of October, 1845.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 9th of October, 1845.

The minutes of the last meeting were read and approved of.

The ballot for the election of Jagannath Sankarsett, Esq. was unavoidably postponed, there being only eight members present, ten being required by the laws of the Society in all ballots for the election of members.

The following paper was read;

By the Author.—*Memorandum* of the Great Comet of 1844-45, by William Pole, Esq., F. R. A. S., Professor of Civil Engineering in the Elphinstone College. The thanks of the Society were unanimously voted to the Author for his acceptable communication, which will appear in an early number of the Society's Journal.

The following donations were laid on the Table:

To the Library.

From the Author.—Zeitschrift für die kunde des Morgenlandes, von Chr. Lassen, Phil. Dr. A. A. L. L. Mag.

From the Author.—De Taprobane Insula Veteribus cognita Dissertatio, by Chr. Lassen, Phil. &c.

From Col. Griffith.—Digest of the Reports made by the Commissioners into Charities.

From the Society for the promotion of knowledge through the medium of the Vernacular Languages.—Prospectus and Proceedings of the Society.

From Government.—Transactions of the Medical and Physical Society of Bombay for 1844.

Thanks were ordered to be returned to the respective Donors of the above presents and the meeting was adjourned to Monday the 24th of Nov. which being the Anniversary of the Society, the Office-bearers and Committee of Management for the ensuing year will then be elected—the latter by ballot, according to the rules of the Society.

At the Anniversary Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Monday the 24th of Nov. 1845.

The minutes of the last meeting were read and approved of.

Jagannath Sankarsett, Esq., a member of the Royal Asiatic Society of Great Britain, proposed at a former meeting to be a resident member of the Society, was balloted for and duly elected.

Assistant Surgeon Heffernan, H. M.'s 47th Regiment, proposed a subscriber to the Library by the Rev. G. Cook, seconded by the Secretary, was admitted agreeably to the Rules.

The Society then proceeded to the nomination of its Office-bearers, and a ballot being taken for the election of ten members of the Managing Committee, the following gentlemen were duly elected for the ensuing year, *viz*;—*Dr. Morehead, W. Howard, Esq., S. Dickinson, Esq., Professor Harkness, Captain H. B. Turner, Rev. G. Cook, J. L. Phillips, Esq., J. Peet, Esq., R. W. Crawford, Esq., and Captain H. B. Lynch.*

The President, Vice-Presidents and Secretary were continued in Office, agreeably to the rules of the Society.

R. W. Crawford, Esq., Captain H. B. Turner, Professor Orlebar, and the Secretary, were nominated a Committee to audit and report on the accounts of the Society.

The following donations were laid on the Table:

To the Museum.

1st. From the President the Hon'ble J. H. Crawford.—A collection of Egyptian Relics and Geological Specimens, from the valley of the Nile and country in its neighbourhood.

2nd. Geological Specimens from the Southern Mahratta Country and Konkan.—By Lieutenant Suart of the Engineers.

3rd. Geological Specimens in illustration of the extinct lakes of India from the Gowel-Ghar Hills.—By Dr. Bradley.

4th. Fossil shells from Sindh.—By the Rev. G. Pigott.

5th. Shells from Johanna and Malwan Iron Ore.—By Dr. Grey.

6th. Coral from the African Coast. By R. X. Murphy, Esq.

7th. Specimens of fossil fish from Mount Lebanon.—By Major G. Jamieson.

To the Library.

1st. Report of the Superintendents of Roads and Tanks for the year 1843-44.—Presented by the Government.

2nd. The Hon'ble Mr. Justice Perry's Charge, delivered to the Grand Jury of Bombay, September the 25th, 1845.—By the Author.

Read a letter from Professor Chr. Lassen of Bonn, acknowledging the receipt of the Society's Journal (No. VIII), and thanking the Society for this acceptable and valuable gift.—The letter further noticed, and highly approved of the proceedings of the Society in collecting and publishing *Ancient Inscriptions* relative to India; such being the only authentic documents of information *on the former condition of it and the history of past times.*

Read a letter from Edwin Norris, Esq., Deputy Secretary of the Royal Asiatic Society of London, presenting a vocabulary of the *Makua Language* spoken on the African Coast of the Mosambique Channel.

Read a letter from Dr. Charles William Ball, Professor of Hebrew in the University of Dublin, on the subject of *Himyaric Inscriptions* from Southern Arabia,—to which he is disposed to assign no higher antiquity than the fourth century of our era, from the circumstance of the letters being separated into distinct groups; it being ascertained that spaces between the words in any Greek writing are not older than the seventh century, and there is no reason to suppose that either the *Ethiopians or Arabians* arrived at this improvement in writing earlier than the Greeks.

Professor A. B. Orlebar, Secretary to the Museum Committee, submitted a report on the present state of the Museum, and remarked, that the objects for which it had been instituted had been steadily kept in view during the past year, and were rapidly progressing towards fulfilment. These were,—1st to make a general collection of such specimens in the various branches of *Natural History*, as would afford means of study to beginners and of comparison to students.—2nd, to make such local collections from the territories under the Bombay Presidency and other places visited by travellers from Bombay, as would at once exhibit the peculiarities of *nature and art*, both in India and the neighbouring countries. The report will be published in an early number of the Journal.

The meeting nominated Professor J. Peet and C. J. Erskine Esq., to supply the places of the Rev. G. Pigott and H. B. Frere Esq., as members of the Sub-Committee for the Museum.

Mr. Orlebar further presented a learned paper of Observations on *Solar Spots*, made between the 31st December and the commencement of the S. W. Monsoon of 1845.

The Secretary then read part of a Discourse on Arabia and the Arabs.

The thanks of the Society were accorded to the various Donors, and the meeting adjourned to Thursday the 11th of December, 1845.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 11th of Dec. 1845.

The minutes of the last meeting were read and approved of.

The following Gentlemen were proposed as members of the Society to be balloted for at its next meeting.—viz. M. Stovell, Esq., proposed

by the Secretary seconded by Captain H. B. Turner.—Dr. J. Don, proposed by the Secretary, seconded by Dr. Burns, K. H.—E. I. Wallace, Esq., Barrister, proposed by A. S. LeMessurier Esq., seconded by the Secretary.

It was proposed by Manockjee Cursetjee, Esq. Dr. Burnes, K. H. and James Bird Esq., Secretary, and carried unanimously, that the names of James Cowles Prichard, M. D. F. R. S. of Bristol, and Thomas Hodgkin, M. D. F. R. G. S. of London, be placed on the list of *Honorary Members* of the Society.

The following donations were laid on the Table:

To the Museum.

1st Two Jain figures from Katiawar.—By Dr. Nicholson, Civil Surgeon, Rajcote.

2nd. Specimens of large bricks dug from below the mounds which mark the ruins of the ancient city of *Vamilapura* in Kattiawar.—By Ditto.

To the Library.

Report of the Bombay Chamber of Commerce for the fourth quarter of 1844-45.—By the Secretary of the Chamber of Commerce.

Professor Orlebar presented a series of Tables calculated at the Observatory from those by Major Boileau, in order to enable Meteorologists to find immediately from each observation of the wet-bulb Hygrometer, the amount of moisture in the air and its pressure. They will enable observers readily to find the correction required for Barometric observations on account of moisture.

The Secretary then read an interesting letter from His Excellency Major General Sir Charles Napier, G. C. B. Governor of Sindh, acknowledging with sincere thanks, the Society's attention in presenting through him for the use of the Sindh Association, the 1st volume of their Journal. The letter pointed out in a graphic and luminous manner the recent improvements which had been made in the construction of *Bunds*, to keep the waters of the Indus within proper channels and thus reclaim large *swamps* from the inundations of the river, which, annually overflowing, produces marshy and unhealthy localities affecting

the health of the Troops and the inhabitants. One of these *Bunds*, thirty miles in length, had been lately constructed between Sukkur and Shikarpur, in order to prevent the superfluous water of the river flowing into an unhealthy *basin* in that neighbourhood: to the construction of which Sir Charles is disposed to attribute the superior healthiness of the Troops stationed at Sukkur for the past year, compared with the amount of sickness among them during previous seasons; but carefully notes, that the experience of future years is requisite to establish the correctness of this opinion. Sir Charles further enumerates the productive capabilities of Sindh as a mineral and agricultural district. In return for this obliging communication, it was moved by James Bird, Esq., *Secretary* of the Society, seconded by James Burnes, K. H. *Vice-President*, and carried unanimously—"That the Society have received with the greatest satisfaction His Excellency Sir Charles Napier's highly interesting letter now read, and with his permission will include it in the next number of their Journal."

The thanks of the Society were then accorded to the various Donors, and the Meeting was adjourned to Thursday the 15th of January, 1845.

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society held in its Library on Thursday the 15th of Jan. 1846.

The minutes of the last meeting were read and approved of.

The following gentlemen were proposed as members of the Society, to be ballotted for at the next meeting.—viz. Lestock Reid, Esq., and Charles James Davies, Esq., of the Civil Service, by the Hon. L. R. Reid, seconded by the Secretary.

The following donations were laid on the Table:

To the Museum.

Minerals from Katiawar.—By Dr. Nicholson, Civil Surgeon, Rajkote.

To the Library.

Grammaire Persanne de Sir William Jones, seconde edition Francaise revue, corrigée et augmentée, Par M. Garcin De Tassy, Membre de l' Institut Royal de France, etc.

The Secretary then read a note from the Rev. Dr. Stevenson, accompanied by a Devanagri transcript of the great inscription from the Bauddha Caves of Nasick, with an English translation which records that the Cave was appointed for the gods and Brahmans, to mortify the passions; and was excavated at the expense of the lord *Dinika*, son of the *Kishaparáta*, ruler of the Kshatriya tribe and protector of men. The inscription further records that the constructor of this holy place gave one hundred thousand cows along with the river *Banasa* and a gift of gold on the occasion of its dedication; and sings its praises as a more desirable place of pilgrimage than *Prabhasa* (Somnath,) the holy Gaya, the Bauddha monastery of the city *Pratisraya*, or even the edifice by *Depankara* on the shore of the fresh-water sea. The date of this Inscription seems also to be mentioned under the astronomical position of the sun and planets, at the period of the gift before mentioned.

The thanks of the Society were accorded to the various Donors, and the Meeting adjourned to Thursday the 12th of February, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 12th of February, 1846.

The minutes of the last Meeting were read and approved of.

M. Stovell Esq., Dr. J. Dun, E. J. Wallace Esq., Lestock Reid Esq., and C. R. Davies, Esq. C. S. duly proposed and seconded as Members of the Society at former Meetings, were ballotted for and unanimously elected.

Dr. Ogilvie M. D., Assistant Garrison Surgeon, was proposed as a Member of the Society by Dr. Burnes, K. H. seconded by the Secretary.

The following donations were laid on the Table:

To the Museum.

1st. From the President, the Hon'ble J. H. Crawford; a further collection of Egyptian Relics and Geological Specimens from the valley of the Nile.

2d. Specimens of Minerals and Plants at Aden. Presented by J. P. Malcolmson Esq.

To the Library.

1st. A Supplement to the Glossary of Indian Terms used in the North Western Provinces. By H. M. Elliot, Esq., of the Bengal Civil

Service, accompanied by a note to the Secretary, requesting to be favored with any comments on the present or suggestions for a future volume, which may be deemed necessary.

2d Abdul Rizak's Dictionary of Technical Terms, used by the *Sufies*, edited in the Arabic original by Dr. Aloys Sprenger, of the Bengal Medical Service. Presented by the Asiatic Society of Bengal.

3rd. The Bengal Pharmacopœia by W. O. O'Shaughnessy, M. D. F. R. S., Bengal Medical Service; and Pathologia Indica, by A. Webb, Esq. Bengal Medical Service. Presented by the Medical Board.

4th. Icones Plantarum Indiæ Orientalis, by R. Wight Esq. M. D. F. L. S., of the Madras Medical Service, Vol. III part 3. Presented by Government.

5th. Circular Orders of the Sudder Dewanee Adawlut of Bombay, for the years 1843 and 1844.—Presented by Government.

The thanks of the Society were accorded to the various Donors, and the Meeting adjourned to Thursday the 12th of March, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society (postponed from the 12th of March), held in its Library on Wednesday the 8th of April, 1846.

The minutes of last Meeting were read and approved of.

G. Ogilvie, M. D., Assistant Garrison Surgeon, duly proposed a Member of the Society and seconded at the last meeting, was ballotted for and unanimously elected.

His Excellency Monsieur de Lagrénè, French Ambassador to China proposed an Honorary Member of the Society by the Secretary, J. Bird, Esq., and the *Vice-Presidents*, Dr. Burnes, K. H. and Col. Jervis, was duly elected in accordance with Art. III of the Regulations.

Col. Jervis, seconded by Dr. Burnes, K. H., moved that a deputation consisting of those who brought forward the forgoing proposition should wait on His Excellency Monsieur de Lagrénè, and announce to him his election as Honorary Member of the Society. The proposition was unanimously carried.

On the proposal of Dr. Burnes, K. H; seconded by Col. Jervis, it was unanimously resolved—That His Excellency should be presented with a complete copy of the Society's Journal from its commencement.

The Hon'ble James Henry Crawford, *President* of the Society, having resigned his Office consequent on his intended departure for Europe by the Mail of the 1st May next, it was proposed by the Secretary, seconded by Col. Jervis and carried unanimously—That the Society record the high sense of obligation it is under to their late *President*, for the devoted zeal and attention he has bestowed on the financial affairs of the Society, for the interest he has at all times manifested in promoting its literary objects and exertions, and for his liberal donations at various times to the Museum.

Moved by Major General Barr, seconded by Col. Dunsterville, and carried unanimously —That the Hon'ble Lestock Robert Reid be requested to accept the office of *President* of the Society, become vacant by the resignation of the Hon'ble James Henry Crawford, returning to Europe.

A letter from the Deputy Secretary of the Royal Asiatic Society of London, relative to the re-publication of the "Bombay Literary Society's Transactions", as agreed on by the Society at its Meeting on the 15th January 1844, was submitted to the Meeting, upon which the Secretary was authorized to reply that in the present state of the Society's finances, with the required list of one hundred subscribers at Rs. 20 each, not filled up, the publication must be abandoned.

The following donations were laid on the Table:

To the Museum.

1st A Cobra de Capello, from W. Graham Esq.

2nd. A pair of horns from the "wild goat," inhabiting the hills bordering on the northern shore of the Persian Gulf, from Capt. C. Giberne, 29th Regt. N. I.

3rd. Specimens of *Algæ*, from Dr. Grierson.

To the Library.

1st. Appendix G. to the new Edition of Tredgold on the Steam Engine, being a Treatise on the *Cornish Pumping-Engine*; by W. Pole; F. R. A. S; F. G. S.—Presented by the Author.

2nd. A collection of *Integral Formulæ*, translated from the German of Meyer Hirsch. Presented by J. Waterston, Esq.

3rd. Persian and Gujarati verses in praise of Ardaweer Dhunjeeshaw. Presented by Jehangeer Pochajee.

4th. Transactions of the Bombay Geographical Society from May 1844 to February 1846. Presented by the Society.

The *Secretary* then read an interesting letter from B. A. R. Nicholson, Esq., Civil Surgeon, Rajcote, containing notes on the Ruins of *Vamilapoor* or *Valabipoora*, near Bhao-Naggar in Khatiawar; which ancient city gives name to an era commencing A. D. 319; and which is mentioned, by the Arab Geographer Abdul Rihan-al-Bairuni, as commencing at the same period as the era of the *Guptis*, or 241 years after the *Shalivahana* year, which dates from A. D. 78.

The *Secretary* also read part of a paper on the Arabian system of Geography, translated by himself from the Introductory Chapter to the Takwim al Baldan of Abulfeda.

The thanks of the Society were accorded to the various Donors, and the Meeting adjourned to Thursday the 14th of May, 1846.

* *

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 14th of May, 1846.

The minutes of the last Meeting were read and approved of.

A letter from the Hon'ble L. R. Reid was read, expressing a deep sense of the honor conferred him on by the Bombay Branch of the Royal Asiatic Society in having elected him their President, and intimating his earnest desire to forward the interests and promote the objects of the Society to the utmost of his power.

A Memorandum from Sir William Harris was also read, accompanying a presentation to the Society of Charles Futschek's *Galla Grammar* and *Dictionary*, in the name of Dr. Roth of Munich; Dr. Roth has kindly volunteered his services to purchase any books required by the Society from Germany.

To the Library.

No. 1. A Grammar and Dictionary of the *Galla language*, by Charles Futschek; Edited by Lawrence Futschek M. D. Presented by Dr. Roth of Munich.

The Secretary then submitted a note from the Rev. J. Stevenson, D.D., accompanying his translation in part, of the *Kalpa Sutra*, the Scriptural book-authority for the *Jaina* religion. This was written by *Sri Badra Bahu Swami*, who states in his account of the 24th or last Jain Tirthankara called *Mahavira*, that he wrote 980 years after his apotheosis; from which Dr. Stevenson assumes the date of the work to be A. D. 453; while there is reason to suppose that the author of the *Kalpa Sutra*, otherwise called in tradition *Jaina Acharya*, was cotemporary with *Kkka Raja*, otherwise named *Raja Amoghversha*, whose date from Copper-plate grants is known to be Saka 894. A. D. 972.

A letter from the Rev. Dr. Stevenson relative to the astronomical date given in the great Inscription from the Bauddha Cave at Nasick, submitted at the January Meeting of the Society, was also read. In this, Dr. Stevenson states the date for the calculation to be the *Sun's Longitude* in the Hindu Ecliptic 10°, *Venus* 357°, and the Moon's *Ascending Node* somewhere between 60° and 90°; from which he deduces the date of the Inscription to be B. C. 453.

The Secretary then submitted to the Meeting an English translation, by Ball G. Shastree Esq. of a Copper-plate Inscription in Sanskrit, found during the late Kolapoor campaign in one of the Hill-forts of that country. The date of the inscription is Saka 675, A. D. 753, and the grant of land recorded was given by *Danti Durga Raja* son of Indra Raja, son of Kakka Raja, son of Govinda Raja, of the same family and race as *Raja Amoghavershа*, between whom and *Danti Durga Raja* the apparent founder of the family, other Copper-plate grants give a lineage of fourteen princes, bringing (on the supposition of twenty years to a reign) the origin of the family to nearly the period given in the present grant.

The thanks of the Society were accorded to the various Donors, and the Meeting adjourned to Thursday the 11th of June, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday, the 11th of June, 1846.

The minutes of the last Meeting were read and approved of.

Capt. J. H. G. Crawford, Engineers, proposed as a Subscriber to the Library by R. W. Crawford, Esq., seconded by Capt. H. B. Turner, was admitted agreeably to the Regulations.

The following gentlemen were proposed as Members of the Society, to be ballotted for at the next Meeting, viz. G. J. Blane Esq, C. S. by W. Escombe Esq. seconded by the Secretary of the Society; and A. Malet, Esq., Political Secretary to Government, by the Hon'ble John P. Willoughby, seconded by S. S. Dickinson, Esq.

Read an account by Assistant Surgeon W. J. Stuart, of a bird of the Swallow tribe (*Hirundo esculenta,*) of which a specimen, preserved in proof spirit, was presented for the Museum.

Read also an account, by the same gentleman, of the tree from which the gum *Kino* is procured in this country and of the mode of preparing it, accompained by specimens of the gum and the wood of the tree from which it is procured.

The best thanks of the Society were accorded to Dr. Stuart for his valuable communications and presents.

The Meeting was then adjourned to Thursday the 9th July, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 9th of July, 1846.

The minutes of the last Meeting were read and approved of.

G. J. Blane, Esq. and A. Malet, Esq., Civil Service, proposed as Members of the Society and duly seconded at the last Monthly Meeting, were ballotted for and unanimously elected.

The following Gentlemen were proposed as members of the Society, viz. E. Down, Esq. C. S. by C. J. Davies Esq. C. S., seconded by the Secretary, and Capt. J. H. G. Crawford, Engineers, by H. B. Turner, seconded by R. W. Crawford, Esq.

A letter from Sir Erskine Perry, resigning his Office of *Vice-President*, was submitted to the Meeting.

A letter from the Marquis de Farrier-le-Vayer, accepting with thanks the mark of distinction conferred on him by the Society in electing him an Honorary Member, as communicated in its Secretary's letter of the 17th February, 1845.

A letter from the Curator of the Museum of the *Literary and Philosophical Society* of St. Andrews, dated the 29th May 1846, announcing that a donation from that Society of Geological Specimens and Minerals, in return for the contribution of the Indian Minerals sent

home by the Bombay Branch Royal Asiatic Society, had been shipped from Liverpool, on board the brig Hesperus for the latter.

James Bird, Esq. proposed by J. Burnes, K. H. seconded by Major Gen. Barr, was unanimously elected a *Vice-President* of the Society to fill the vacancy made by the resignation of Sir E. Perry, the former to retain his Office of Secretary of the Society in conformity to a similar proposition of the Bengal Asiatic Society, in which H. Torrens, Esq. was elected to the double Office of V. P. and Secretary.

The following donations were presented to the Society:

To the Museum.

1st. From Assistant Surgeon F. Broughton, through the *Vice-President* J. Burnes, K. H., a skull from New Zealand, and some specimens of Lead and Copper ore from the mines of *Glen Ozwan*, near Adelaide in South Australia, and from the *Montacute* mines in the same neighbourhood; also a specimen of the *Spherria Robertii*.

2nd. From Capt. J. Young I. N. a collection of Birds' skins, from New Zealand. Presented through Professor Orlebar.

The Secretary then read some "Notes," by Assistant Surgeon H. J. Carter, on the great *Mahrah* Tribe of Southern Arabia; accompanied by a Vocabulary of the *Mahrah* Language and further "Notes" on the *Garah Tribe*.

A note from Professor Orlebar accompanying a description of the phenomena attendant on the annular Eclipse of 1840 in India, with computations and illustrations drawn up by Keru Laxuman, one of the Assistants at the Observatory, was also read.

The best thanks of the Society were accorded to the Donors of the above valuable presents and communications, and the Meeting was adjourned to Thursday the 13th of August, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 13th of August, 1846.

The minutes of last meeting were read and approved of.

E. Down Esq., C. S. and J. H. Crawford, of the Engineers, proposed as Members of the Society and duly seconded at the last Meeting, were balloted for and unanimously elected.

The following gentlemen were proposed and duly seconded as Members of the Society, Capt. Curtis, by W. Escombe Esq., seconded by W. H. Harrison, Esq.; A. F. Bellasis Esq. C. S., by W. H. Harrison, Esq., seconded by W. Escombe Esq.; and Lieut. J. F. Jones, I. N. by Capt. H. B. Lynch, seconded by Capt. H. B. Turner.

Agreeably to the notice in the Monthly Circular, the proposal to have the Calcutta Review taken in from its commencement, was submitted to the Meeting; relative to which it was resolved—

That this proposition recommended by the *Committee of Management*, be sanctioned; in consequence of the Asiatic Journal (one of the periodical publications retained in the list adopted by the General Meeting held on the 12th of February 1846,) having been discontinued.

Read a letter from Sir Erskine Perry accompanying a present of copies of some of the printed minutes of the Law Commission with reference to a new Law Tribunal. Sir E. Perry regrets that it is not in his power to forward to the Society a complete series, as the views contained in them are especially applicable to India. The other part of the letter comments on the deficiencies that exist in the classes of works in the Society's Library, which refer to the Government of India and Oriental Literature.

The following donations were presented to the Society:

To the Library.

1st. From Sir Erskine Perry,—Minutes on Law Reform with reference to a New Tribunal.

2nd. From E. Wallace, Esq. Barrister at Law, Bombay,—A Map of the *Oregon Territory*, the subject of dispute between the British and United States' Government, with a Pamphlet on the controversy written by the Donor.

3rd. From the Government with a letter from W. Escombe, Esq.—A Copy of the Reports on the Roads and Tanks for 1844-45, drawn up by the Government Superintendent.

To the Museum.

From the *Literary and Philosophical Society* of St. Andrews,

through Dr. Buist.—119 Geological Specimens and Minerals, chiefly from the County of Fife.

The best thanks of the Society were accorded for the various Donations, and the Meeting adjourned to Thursday the 10th of September, 1846.

At a Monthly Meeting of the Bombay Branch Royal Asiatic Society, held in its Library on Thursday the 10th September, 1846.

The minutes of the last Meeting were read and approved of.

Capt. Curtis, A. F. Bellasis, Esq. By. C. S. and Lieut. J. F. Jones, I. N. proposed as Members of the Society, and duly seconded at the last Meeting, were ballotted for and unanimously elected.

The following gentlemen were proposed as Members of the Society to be ballotted for at its Meeting viz.—T. S. Cowie Esq., proposed by R. W. Crawford, Esq., seconded by the Secretary;—A. Blackburn Esq. proposed by John Hollmd, Esq. seconded by R. W. Crawford, Esq.; and T. J. A. Scott, Esq. proposed by the *Vice-President* Col. Jervis, seconded by the *Secretary*.

The following donations were presented to the Society:

To the Library.

Memoirs of the Royal Astronomical Society of London. Presented by that Society.

To the Museum.

From Capt. T. Johnson, Commanding the Ship *Recovery*, a large specimen of *Cheiroptera* from the island of Java.

A letter from Capt. P. T. French, dated Mundhiseer, accompanied by copy of an inscription in the round character of the Armenian, was also submitted. The stone from which the inscription was taken, was brought several years ago from Asseer, and records that it belongs to the *tomb of Sarkies, the son of Lagar Khoorsian of Jeean, who died suddenly on Ascension Day, the 17th June*, 1131. There is a second inscription in the same character on another stone, which is somewhat broken; a copy also of which Capt. French offers to forward to the Society.

A letter from W. Escombe Esq., Secretary to Government, presenting to the Society a copy of a *Prakrit* inscription, (taken from Copper plates found at *Oojein*,) forwarded to Government by Assistant Surgeon E. Impey, was also laid before the Meeting.

The Secretary then submitted for examination a collection of undescribed *Parthian Coins* belonging to John Bowman, Esq. accompanied by Numismatic observations on leading historical points and peculiarities of this collection.

The best thanks of the Society were accorded for the various donations and presents, and the Meeting was adjourned to Thursday the 8th October, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 8th October, 1846.

The minutes of the last Meeting were read and approved of.

S. Cowie Esq., Andrew Blackburn, Esq. and T. J. A. Scott, Esq. proposed as Members of the Society and duly seconded at the last Meeting, were ballotted for and unanimously elected.

Museum.

The following donation was presented to the Society by James Bird, Esq. viz. Ten silver Coins, being a part of four hundred lately found in a ploughed field near Shirouli, distant ten miles eastward of Narayangoan, in the district of Junir. The Donor states that they are of *Vijaya Sah*, *Rudra Sah*, *Atri Dama*, and *Wiswa Sah*, four of the ten *Sah Rajas* of whom a nearly correct list was given by the late James Prinsep, Esq., that they will prove of great use in further investigation of the Sah dynasty, and their dates and Greek legends will afford considerable help in determining the relative position of these Princes to the *Valabhi* and *Gupta Rajas* of the fourth and fifth centuries of the Christian era.

The thanks of the Society were accorded to Dr. Bird, and the Meeting was adjourned to the 12th of November, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 12th of November, 1846.

The minutes of the last Meeting were read and approved of.

Members proposed; Lieut. G. F. Ashburner 8th Regt. N. I., proposed by Dr. James Barnes, K. H. V. P. and seconded by Major Holland.

Letters and Communications.—Letters were read from Major General Vans Kennedy and Professor Orlebar, respecting the merits of Mr. McCudden's work on Oriental Eras.

The Meeting adjourned to the 12th December, 1846.

At the Anniversary Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Monday the 30th November, 1846.

The minutes of the last Meeting were read and approved of.

Lieut. G. E. Ashburner, 8th Regt. N. I. proposed a Member of the Society and duly seconded at the last meeting, was balloted for and unanimously elected.

The Meeting proceeded to the election of *Office-bearers* for the ensuing year; on the proposition of Col. Jervis, *Vice-President*, seconded by J. Glen, Esq., the Rev. John Stevenson, D. D. was unanimously elected a *Vice-President* of the Society.

The *Committee of Management*, was then balloted for, and the following gentlemen chosen, viz. Professor John Harkness, Capt. H. B. Turner, S. S. Dickinson, Esq., Rev. G. Cook, J. Glen, Esq., J. Don, M. D., C. Morehead M. D., Capt. H. B. Lynch, I. N; W. Howard, Esq. and J. Scott, Esq.

The following gentlemen were also chosen as a *Committee for the Museum*: Professor A. B. Orlebar, Rev. G. Pigott, H. J. Carter, Esq. C. J. Erskine, Esq., Lieut. W. F. Marriott, and Capt. T. M. B. Turner.

The Meeting was then adjourned to the 10th of December, 1846.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 10th December, 1846.

The minutes of the last Meeting were read and approved of.

The Rev. P. Anderson, Chaplain, was proposed as Member of the Society by the Rev. G. Pigott, seconded by the *Secretary*, to be balloted for at the next Meeting.

The Secretary submitted a letter from the chief Secretary to Government, transmitting ten printed copies of a despatch from the Honor-

able the Court of Directors to the Government of India, intimating that a *Statistical Department* had been formed in the Home Establishment, where all information relative to the Geology, Climate, Cultivation, and Agricultural Productions, Population, Commerce and Political Geography of the various districts in India will be received, arranged, and recorded for reference.

The Secretary was authorized to thank Government for the information communicated, and to state in reply that the Society is ready to promote the useful and interesting researches contemplated by the Honorable Court, and to aid in carrying out its object in any way which Government may propose.

The following donations were presented to the Society :—

A copy of the *Bhagavata Purana* lately printed in Sanskrit, at the Royal Press of Paris, under the superintendence of M. Eugine Burnouf, Member of the Institute of France. Presented and accompanied by a letter from the French Government to the *President* of the Society.

The Secretary was instructed to draft a letter of thanks for this most acceptable donation, and to acquaint Monsieur Lebrun, Director of the Royal Press of Paris, that copies of the Society's Journal from its commencement, will be forwarded in the name of the Society, for presentation to the *Royal Library*.

To the Museum.

120 Specimens of Ores from Germany. Presented by J. Bowman, Esq.

The best thanks of the Society were accorded to Mr. Bowman for his valuable present.

The Meeting then adjourned to Thursday the 14th January, 1847

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 14th January, 1847.

The minutes of the last meeting were read and approved of.

The Rev. P. Anderson, Chaplain, proposed as a Member of the Society, and duly seconded at the last meeting, was ballotted for and unanimously elected.

On the motion of R. W. Crawford, Esq., seconded by J. Bird, Esq.,

intimating that Sir David Pollock, *Chief Justice*, Member of the Royal Asiatic Society of Great Britain, should be invited to become a Member of this Society,—the *Secretary* was instructed to write to Sir David Pollock, and to inform him that he had been admitted a Member by virtue of his belonging to the Home Society.

The following Gentlemen were proposed and duly seconded as members of the Society to be balloted for at its next meeting; Lieut. C. G. Constable, I. N. by H. J. Carter, Esq., seconded by the *Secretary*, and Dr. W. C. Coles, By. M.S. by the Secretary, seconded by H. J. Carter, Esq.

On the motion of the *President* the Hon. L. R. Reid, seconded by the *Vice-President* Col. Jervis, it was resolved,—That in testimony of the profound learning, deep and varied acquirements, in History, Philology, and other branches of Oriental Literature, of the late Major General Vans Kennedy, this meeting, from a grateful appreciation of his long and valuable services in connection with General Literature, and the special object for which the Bombay Branch of the Royal Asiatic Society was instituted, do record its admiration of his great and varied talents, with an expression of deep regret for the loss experienced by his death; and that a special meeting be convened on Thursday the 4th February next, for taking into consideration the best method of manifesting the Society's respect for his memory.

The following donations were presented to the Society:

To the Library.

A letter from the Chief Secretary to Government, presenting Vol. III. Part 4 of Wight's *Icones Plantarum India Orientalis*.

A letter from the Secretary to Government, in the General Department, presenting Report No. V. of the Board of Education, for the year 1845.

To the Museum.

Specimens of Copper-Ore brought from the Island of *Maseera* on the South-East Coast of Arabia by Assistant Surgeon Carter. Presented by the Government.

Original Communications.

Assistant Surgeon Carter's Report on Copper-Ore from the Island

of *Masceera*; and of Lithographic Limestone from the South-Eastern Coast of Arabia.

An account, by the Rev. Dr. Stevenson, of the Marriage Ceremony of Brahmans, who wish to contract the *third* Marriage, and are anxious to avert the evils and misfortunes denounced against such contracts.

The best thanks of the Society were accorded for the various donations and interesting papers noticed.

The Meeting was adjourned to the special Meeting appointed to be held on the 4th of February, 1847.

At a Special Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library, on Thursday the 4th of February 1847, for the purpose of taking into consideration the best method of manifesting the Society's respect for the memory of the late Major General Vans Kennedy.

The minutes of the last meeting were read and approved of.

A Biographical Memoir of the late General Kennedy was then read by the *Secretary*, after which it was moved by the Hon'ble the *President* L. R. Reid, seconded by the *Vice-President* Col. Jervis, and resolved, —That in reference to a resolution of the Society passed on the 14th of January to call a special meeting on this day, to take into consideration the best method of manifesting its respect for the memory of the late Major-General Vans Kennedy, this Society, in addition to its opinion of his valuable services in connection with *Oriental Literature* &c. already recorded in its proceedings, do open a subscription for the purpose,—1st of erecting a suitable monument over his remains, and 2nd of providing a Gold Medal, to be placed annually at the disposal of the Board of Education, and awarded by it in a manner that may seem most conducive to the promotion of Oriental Literature.

2nd. It was moved by Chief Justice Sir David Pollock, seconded by the *Vice-President* and *Secretary*, J. Bird, Esq.—That the subscription should not be confined to members of the Society alone, but be open to all persons.

3rd. It was moved by the Hon'ble J. P. Willoughby, Esq., seconded by J. Glen, Esq.—That the Biographical Memoir of Major General Vans Kennedy be printed in the Society's Journal, and copies of it distributed to all the learned Societies connected with Oriental Literature

in all parts of the world, with an expression of the Society's deep regret at the demise of one so deservedly celebrated in the Annals of Oriental Learning.

4th. It was moved by C. J. Erskine, Esq., Priv. Secy. to the Governor, seconded by A. Malet, Esq., Secy. to Government—That the several Asiatic Societies in Asia, Europe, and America, be specially invited to join in this tribute of respect to the memory of one whose reputation as an Oriental Scholar is so widely extended throughout the civilized world.

Sir David Pollock, seconded by Dr. Buist, then proposed—That the cordial thanks of this Meeting be presented to the *Secretary* of the Society, for his able and satisfactory Memoir of Major General Vans Kennedy. The above propositions were carried unanimously.

The Meeting was then adjourned to Thursday the 11th of February, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library, on Thursday the 11th February, 1847.

The minutes of the last Meeting were read and approved of.

Lieut. C. G. Constable, I. N. and Dr. W. C. Coles, By. M. S. who were duly proposed and seconded as Members of the Society at the former Monthly Meeting, were balloted for, and unanimously elected.

Capt. Partridge, of the 8th Regiment N. I. proposed as a Member of the Society by Dr. Buist, seconded by the Secretary, to be balloted for at the next Monthly Meeting.

On the motion of the *Vice-President* Col. Jervis, seconded by the *Vice-President* and *Secretary*, J. Bird, Esq., it was resolved,—That a deputation, consisting of the *President*, *Vice-President*, and *Secretary*, should wait upon the Hon'ble the Governor, George Russell Clerk, to solicit his Honor to become the Society's Patron.

On the motion of R. W. Crawford, Esq., seconded by the *Vice-President* the Rev. J. Stevenson, D.D., it was resolved,—That Sir David Pollock, Chief Justice, be further requested to do the Society the honor of becoming its *Vice-Patron*.

It was then proposed by the *Vice-President*, the Rev. J. Stevenson D.D., seconded by the Rev. G. Pigott, and unanimously resolved,—That in consideration of the many and deep obligations which this Society is

under to Professor Orlebar, both for the assiduous labour and varied talents which he has devoted to the classification of the Museum, in all its branches, as well as for the zeal which he has invariably displayed in furthering its literary and scientific objects, *this Society* do convey to professor Orlebar, through their Secretary, their sincere regret at the cause which has compelled him to finally leave India, with an expression of their high sense and appreciation of the extent and value of his former services as Secretary (already placed on record in the proceedings of the Society), and since as Conservator of the Museum.

On the suggestion of the Rev. G. Pigott, H. J. Carter, Esq., B. M. S. was unanimously nominated by the Society as *Conservator* of the Museum in succession to Professor Orlebar.

The following donations were presented:—

To the Library.

Twelve volumes of the Bible for the Blind, and a copy of Grammar embossed for the purpose of teaching them to read. Presented by H. B. E. Frere, Esq.

No. III. of Jordon's Illustrations of Indian Ornithology. Presented by Framjee Nasserwanjee, Esq.

A copy of the *Sanhita* of the *Sama Veda*, translated into English by the Rev. John Stevenson, D.D. Presented by the Author.

To the Museum.

1. A collection of Fossils from Sindh and the valley of the Indus. Presented through Dr. Buist, by Capt. Partridge, of the 18th Regiment N.I.

2. A collection of Geological Specimens from Khatiawar, collected by Capt. H. Aston, 1st Assistant to the Political Agent at Rajcote, with a letter from A. Malet, Esq., Political Secretary to Government. Presented by Government.

Original Communications.

Assistant Surgeon Carter's account of the *Frankincense Tree of Arabia* with remarks on the misplacement, of the "*Libanophorous Re-*

gion," in Ptolemy's Geography accompanied by a Botanical drawing of the tree producing Frankincense.

The best thanks of the Society were accorded for the donations to the Library and Museum; and the Meeting adjourned to Thursday the 11th of March, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 11th March, 1847.

The minutes of the last Meeting were read and approved of.

Capt. Partridge 18th Regt. N. I., duly proposed and seconded as a Member of the Society at its last Meeting, was ballotted for and unanimously elected.

The following Gentlemen were proposed and duly seconded as members of the Society, to be ballotted for at its next Meeting: Dr. Hyslop, by Capt. Carless I. N. seconded by James Bird, Esq; Lieut. J. B. Dunsterville, by Col. J. H. Dunsterville, seconded by J. Glen, Esq; and E. Impey, Esq., by Capt. Montriou, I. N., seconded by H. J. Carter, Esq.

Letters were then read from Sir David Pollock, accepting the Office of *Vice-Patron* of the Society, and from Dr. Sperschneider, accompanying a present from Dr. Pruner of Munich.

The following donations were presented to the Society:

To the Library.

1st. Two copies of the "Provisional Report on the Meteorological Observations made at Colabah, Bombay, for the year 1844" by G. Buist, Esq., L.L. D. Presented by the Author.

2nd. A Copy of a paper on the identity of feature between the Ancient Egpytians as figured in the tombs at Thebes and the Fellahs of the present day, by Dr. Pruner. Presented by the Author.

The best thanks of the Society were ordered to be transmitted to Dr. Buist, and to Dr. Pruner for their valuable contributions to the Library.

Respecting the motions, of which notice was given at the last Meeting, for the alteration of Arts. VII and XLI. of the Society's Rules, it was proposed by R. W. Crawford, Esq., seconded by T. M. B. Turner, and carried,—That the following sentence shall be added to Art. VII of the Society's Rules, viz.—

"The Members of the Society resident in Salsette, Caranja, or Angria's Colabah, are allowed the option of being considered Resident or Non-Resident Members."

The Meeting then adjourned to Thursday the 8th of April, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 8th of April, 1847.

The minutes of the last Meeting were read and approved of.

Dr. Hyslop, Lieut. J. B. Dunsterville, and E. Impey Esq. who were duly proposed and seconded as Members of the Society at its last Meeting, were ballotted for and unanimously elected.

Col. G. Moore, Auditor General was proposed as a member of the Society by the *President*, seconded by W. Escombe, Esq.

The following donations were presented to the Society:

To the Library.

1st. The sixth volume of Thornton's History of British India, *in sheets*. Presented by the Hon'ble the Governor in Council, accompanied by a letter from W. Escombe, Esq., Secretary to Government in the General Department.—2d The Bengal Pharmacopeia, and General Conspectus of Medicinal Plants, by W. B. O'Shaughnessy, M. D. F. R. S. &c. Presented by the Author.—3d A translation from the German, of Dr. E. Alban's, High-pressure Steam-Engine investigated, with notes by W. Pole, Esq., F. R. A. S. Presented by the Translator.

Original Communications.

Geological Observations on the banks of the river Taptee, accompanied by a section taken from a Ford near the village of Dolan, by A. B. Orlebar, A. M. Presented by the Author.

To the Museum.

A collection of Geological Specimens from the Ford near the village of Dolan above mentioned. Presented by A. B. Orlebar, A. M.

The best thanks of the Society were ordered to be transmitted to the

several Contributors for their valuable additions to the Library and Museum, and the Meeting was adjourned to the 13th of May, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday, the 13th of May, 1847.

The minutes of the last Meeting were read and approved of.

Col. Moore, Auditor General, duly proposed and seconded as a Member of the Society at the last Meeting, was ballotted for and unanimously elected.

Mr. Wattenbach, was proposed as a Member of the Society by Capt. T. M. B. Turner, seconded by Lieut. Marriott.

Letters were read from Lieut. Col. Melville, Secretary to Government, Lieut. Col. Waddington, Capt. Montriou, I. N., and the Rev. William Clarkson.

The following presents to the Society were laid before the Meeting:

To the Library.

"Magnetical and Meteorological Observations made in the Observatory at Colabah, Bombay, from April to December 1845." By Professor A. B. Orlebar, M. A. of the Elphinstone Institution. Presented by the Hon'ble the Governor in Council.

Through the Lord Bishop of Bombay,—"Expository Lectures on St. Paul's Epistles to the Colossians," by Daniel, Bishop of Calcutta. From the Author.—"Five Sermons on public occasions," by the Bishop of Calcutta. From the Author.—"Journal of a Visitation Tour through the provinces of Madura and Tinnevelly in the Diocese of Madras, to which are added two Charges," by the Right Reverend George Trevor Spencer, Lord Bishop of Madras. From the Author.

Through the Hon'ble L. R. Reid, *President* of the Society, "A Catalogue of Chinese Buddhistical Works," also "Statistics of Government Charitable Dispensaries." Presented by Lieut. Col. W. H. Sykes, F. R. S.—Through the Hon'ble the Governor in Council, from the Hon'ble the Court of Directors. "Facts and suggestions concerning the Economic Geology of India," by Professor D. T. Ansted, F. R. S. Vice-Secretary, Geological Society.—"A Grammar of the Gujarati Language," by the Rev. William Clarkson, of the London Missionary Society. Presented by the Author.

To the Museum.

A large collection of Mineralogical Specimens from the Countries of *Khatiawar* and *Cutch*, each labelled with the name of the place from whence it was taken and its distance from some known station. Presented by Lieut. Col. Waddington, C. B.

The best thanks of the Society were voted to the several Contributors for their valuable presents to the Library and the Museum; and the Meeting was adjourned to Thursday the 10th of June, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 10th of June, 1847.

The minutes of last Meeting were read and approved of.

Mr. Wattenbach, duly proposed and seconded as a Member of the Society at its last Meeting, was ballotted for and unanimously elected.

Letters were read from H. M. Elliot, Esq., Secretary to the Government of India with the Governor General, and Henry Cope, Esq., Secretary to the Archæological Society of Delhi.

Presented to the Museum.—Two Specimens of *Scorpio afer* from Cochin on the Malabar Coast by Capt. Lynch, Indian Navy.

With reference to the letter of H. M. Elliot, Esq., requesting the Society to furnish him with a list of its manuscripts on subjects connected with Indian History,—it was resolved, that one should be made out after the form transmitted and forwarded to his address by the earliest opportunity.

It was also resolved, upon the reading of the letter of Henry Cope, Esq.,—That a complete set of the Society's Transactions be forwarded to his address for the acceptance of the Archæological Society of Delhi, and that the Secretary be requested to intimate the willingness of the Bombay Branch of the Royal Asiatic Society to co-operate with it in any way that will tend to promote its objects.

Adverting to the printed dispatch forwarded by the Hon'ble the Court of Directors to the Government of India for the purpose of obtaining general statistical information of India, copies of which had been transmitted through the Government of Bombay to the Society,—Dr. J. Stevenson *Vice-President*, stated, that at the last meeting, the Hon'ble the Governor had been pleased cursorily to ask what had been done in

this respect, and that actuated by this, he was induced to submit the following resolutions to the Society, viz.—

1st. That as the subject of Statistics has of late particularly occupied the attention of the Royal Asiatic Society at home, this Branch appoint a Statistical Committee for this special object.

2nd. That as a general *Census* of the population of the island of Bombay must form one of the fundamental elements of a Statistical Report, steps be immediatly taken in connection with Government, to have an accurate census made.

3d. That as considerable expense will attend the taking of this census, the Statistical Committee be directed to put itself in communication with Government and to obtain from that quarter the necessary funds, as unfortunately at the present time the Society's finances will not permit of its doing more than directing and superintending the operations of the Agents employed in the work.

4th. That to ensure the completion as soon as possible of an accurate Statistical Report of the Island, the Statistical Committee be directed to divide itself into sections, as for example, into a Population, a Geological, an Antiquarian, a Mercantile, a Medical, and an Educational Section.

5th. That it be distinctly understood, that if the labours of the Statistical Committee succeed in Bombay, the results will be published in the Society's Journal, and steps taken for extending operations of a similar nature to the other cities and districts of the Presidency through the Non-Resident Members of the Society in their respective Provinces.

The above resolutions having been read, a copy of them was ordered to be posted in the Library, and their discussion deferred until the next Meeting of the Society.

The best thanks of the Society were voted to Captain Lynch I. N. for his valuable present to the Museum, and the Meeting was adjourned to the 8th of the July, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society held in its Library on Thursday the 8th of July, 1847.

The minutes of the last Meeting were read and approved of.

Capt. Ethersey, I. N. was proposed as a member of the Society, by Capt. Carless, seconded by James Bird, Esq; Major D. Davidson, Com-

missary General, was proposed a member of the Society, by Dr. Don, seconded by J. Glen, Esq.

Read a letter, from Professor Lassen of Bonn to the Secretary, intimating that No. IX of the Society's Journal, which was forwarded to him by a private channel, had not been received. In reference to this, it was resolved, that Nos. IX and X. of the Journal should be forwarded to Professor Lassen by the first Mail, to the care of Mr. J. M. Richardson, London.

PRESENTED TO THE LIBRARY.

A Copy of M. A. W. Von Schlegel's Bhagavad Gita, edited and corrected under the care of Christian Lassen. Presented by the Editor.

An account of China, comprising the Topography, History, Customs, and Languages,—written in Gujarati, by Cowasjee Soralujee Cowasjee Patell. Presented by the Author.

Royal Astronomical Society's Proceedings No. 12 of Vol. VII, February 1847. By that Society.

Files of the London Times Newspaper from 1822 to 1846. Presented by the Proprietors of the Bombay Times, through Dr. Buist.

A Copy of the Report on Roads and Tanks for the years 1845 and 1846, by the Superintendent. By the Government.

Dr. Stevenson's propositions for appointing a Statistical Committee, to obtain in connexion with Government a correct census of the population of Bombay as the first step to a Special Report of the Island, and afterwards to extend its labours to the several districts of the Presidency, was submitted to the Meeting for discussion, and it was resolved,—That the following gentlemen be appointed a Sub-Committee for ascertaining and reporting to the Society whether it be practicable to carry out the objects contemplated by these propositions,—viz. The Rev. Dr. Stevenson, *President*; Professor John Harkness; Assistant Surgeon H. J. Carter; The Rev. G. Pigott; The Rev. Mr. Mitchell; H. Young, Esq. C. J. Erskine Esq; J. Smith Esq; Capt Curtis; Capt. H. B. Turner, Cursetjee D. Pestonjee, Esq; Juganath Sunkersett, Esq; Aga Mahomed Jaffer, Esq; Manackjee Cursetjee Esq; and the *Secretary* of the Society.

On the proposition of the Rev. G. Pigott, seconded by the Secretary, it was resolved,—That a Sub-Committee consisting of C. J. Erskine, Esq. Professor John Harkness, H. J. Carter, Esq. and the Secretary be ap-

pointed to report on the present state of the Library, and the best means of securing a better preservation of the Standard Works and valuable MSS. belonging to the Society.—It was further resolved on the motion of the *President* that Mr. Pigott's name be added to this Committee.

The Secretary then submitted to the Meeting a valuable and interesting paper on the "Balsam-Trees (Balsamodendra) of Sindh," by Assistant Surgeon J. E. Stocks, Vaccinator in Sindh.

The best thanks of the Society were voted to the Author of this communication, and to the several Contributors for their valuable presents to the Library.—The Meeting was then adjourned to Thursday the 12th of August, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday, the 12th of August, 1847.

The minutes of the last meeting were read and approved of.

Capt. Ethersey, I. N. and Major D. Davidson, Commissary General, who were duly proposed and seconded as Members of the Society at its last Meeting, were balloted for, and unanimously elected.

Read,—The following letter dated Simla, July the 8th, from the Foreign Secretary to the Government of India in attendance on the Governor General.

Simla, July 8th 1847.

Dear Sir,—As a Mission is about to start to the frontier of Chinese Tartary, I shall be glad to learn if there is any question of literary or scientific interest which you would wish its Members to make the subject of their investigation.

A Barometer and a few Magnetical and other Philosophical Instruments accompany the Mission, which will consist of Capt. Cunningham, Dr. T. Thomson, and Lieut. Strachey; and to such careful and intelligent observers may safely be entrusted any enquiry your learned Society may wish them to prosecute.

I remain,
Dear Sir,
Your most obedient servant,
(Signed) H. M. Elliot,
Foreign Secy. to Govt. of India.

To,
The Secretary to the Branch Asiatic Society, Bombay.

With reference to this letter, the Secretary submitted a draft of *Desiderata* relative to the *Orography, Hydrography, Ethnology* and *Archæology of Central Asia.* On which it was resolved,—That the draft be adopted, and forwarded without delay to H. M. Elliot, Esq. the Foreign Secretary with the Governor General; and that a copy of his letter be transmitted to the Geographical Society, requesting to be informed if its Members have any questions to propose to the Mission.

Read,—A letter from the Secretary of the Bombay Government, presenting three copies of the Report of the Board of Education for 1846.

The following presents to the Society were laid before the Meeting:

To the Library.

Zeitschrift fur die Kunde des Morgenlandes herausgegeben, von Christian Lassen.—By the Author.

La Rhetorique des Nations Musulmanes d'apres le traite Persan, intitule Hadayik ul-Balagat, par M. Garcin de Tassy.—By the Author.

Statistics of Civil and Criminal Justice, and of Government Charitable Dispensaries in India. By the Author Lieut. Col. Sykes, C. B.

Circular Orders of the Sudder Dewanee Adawlut, Vol. I, part 3, and Report of the Board of Education for 1846. By Government.

Prospectus of a general exposure of the Oriental Pantheon, or a Review of the spurious creeds now extant in the East. By the Author, Mr. Muhleisen.

To the Museum.

Specimens of Iron-ore from Malwan. By Lieut. C. W. Montriou, I. N.

In reference to the proceedings of last Meeting appointing a Sub-Committee for ascertaining and reporting whether it be practicable to carry out Dr. Stevenson's propositions for obtaining a correct Census of the population of Bombay, the Sub-Committee reported to the Meeting of the Society, that having made the necessary preliminary inquiries, and obtained returns of the number of houses in the several divisions of the Island, the Committee are of opinion that, under present circumstances, and in deference to the feelings of the Natives, it is advisable to postpone the *Census*.

For the donations to the Library and Museum the thanks of the Society were unanimously voted; and the Meeting was adjourned to Thursday, the 9th of September, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 9th of September, 1847.

The minutes of the last Meeting were read and approved of.

H. P. Malet, Esq., C. S., proposed as a Member of the Society by A Malet, Esq., seconded by James Bird, Esq., to be ballotted for at its next Meeting.

In reference to the proceedings of last Meeting, that a Copy of the Letter from the Foreign Secretary to the Government of India, be forwarded to the Geographical Society, requesting to be informed if its Members have any questions to propose to the Mission proceeding to the Frontiers of Chinese Tartary,—the Secretary read a reply from that Society, containing suggestions on certain points to which the attention of the Members of the Mission might be usefully directed. This reply was accompanied by a copy of a letter from R. Chambers, Esq. of Edinburgh, who, in reference to a paper on *Ancient Beaches*, read by him at the Oxford Meeting of the British Association, sought for further information and facts similar to those on which his deductions had been made, on the subject of the relative levels of sea and land over large portions of the Globe. Resolved—That both Communications be transmitted to H. M. Elliot, Esq., Secretary with the Governor General, for the purpose of recommending the proposed investigations contained in them to the favorable attention of the Members of the Mission.

There being no other business, the Meeting was adjourned to Thursday the 14th of October, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Thursday the 14th of October, 1847.

The minutes of the last Meeting were read and approved of.

In reference to the proceedings of the Society's Meeting of the 12th August last, directing that the Notes of Inquiry for the Thibet Mission, should be dispatched to the Foreign Secretary to the Government of India in attendance on the Governor General, to be followed by ques-

tions expected from the Geographical Society. Read,—letters of thanks acknowledging their receipt, and stating that they had been forwarded for the use of the members of the Mission.

The following presents to the Society were laid before the Meeting:

To the Library.

Royal Astronomical Society's Proceedings No. 13 of vol. VII, March, 1847.

To the Museum.

A white marble Jain Image dug up in the Town of Broach. Presented by A. W. Ravenscroft, Esq.

A Bow and Arrows taken from a Sikh Soldier on the field of Sobraon. Presented by Mr. Blackwell, through Dr. Baist

The following papers presented to the Society were read to the Meeting:

Notice of Dr. Roth's investigations of the Vedas, by the Rev. J. M. Mitchell. Some Remarks on the relation that subsists between the Jain and Brahmanical Systems of Geography, accompanied by two Maps illustrative of Puranic Geography, by the Rev. John Stevenson, D.D.

The Society's best thanks were voted for the several donations, and for the interesting and valuable communications mentioned. The Meeting was then adjourned to Thursday the 11th of November, 1847.

At a Monthly Meeting of the Bombay Branch of the Royal Asiatic Society held in its Library on Thursday the 11th November, 1847.

The minutes of the last Meeting were read and approved of.

H. P. Malet, Esq., C. S. duly proposed and seconded as a Member of the Society, was balloted for and unanimously elected.

The Hon'ble Sir William Yardley, and J. G. Lumsden, Esq. C. S. were proposed as Members of the Society, by the Hon'ble Sir Erskine Perry, seconded by Col. Jervis *Vice-President*, to be balloted for at the next Meeting.

The *Secretary* announced his approaching departure for Europe, and

consequent intention of resigning his office at the Anniversary Meeting of the 29th instant.

The following donations to the Library and Museum were laid before the Meeting:

To the Library.

Notizia intorna alla famosa opera istorica di A,bd-er-Rahhman Ibnu Khaldun del Conte Cavaliere Jacobo Graberg Da Hemso.—Ultimi Progressi della Geographia, by ditto.—Observations authentiques sur La Peste du Levant, by ditto. Presented through the Rev. J. Wilson D.D.

To the Museum.

Shells from Kattiawar, collected by Capt. H. Aston. Presented by Government.

There being no other business, the Meeting was adjourned to Monday the 29th November, 1847.

At the Anniversary Meeting of the Bombay Branch of the Royal Asiatic Society, held in its Library on Monday the 29th November, 1847.

The minutes of the last Meeting were read and approved of.

Dr. Arbuckle, Bombay Medical Service, was proposed as a member of the Society by Dr. Glen, seconded by Dr. J. Scott.

The Meeting, in conformity with Art. X of the Rules, proceeded to the election of Office-Bearers; when on the proposition of the *President*, seconded by Dr. Stevenson, Sir Erskine Perry was unanimously chosen *Vice-Patron* of the Society; and the following gentlemen were duly elected, for the Managing Committee of the ensuing year, viz.—Professor John Harkness; C. J. Erskine Esq.; S. S. Dickinson, Esq.; Rev. G. Cook; J. Glen, Esq.; J. Don, M. D.; C. Morehead, M. D. Capt. H. B. Lynch I. N.; W. Howard, Esq., and John Scott, Esq.

The following gentlemen were also nominated a Committee for the Museum, viz.—The Rev. G. Pigott; H. J. Carter, Esq.; C. J. Erskine

Esq.; Lieut. W. F. Marriott; Lieut. C. W. Montriou I. N. and Dr. W. C. Coles.

Col. G. Moore and A. Spens Esq. C. S. were nominated Auditors for the Society's Annual Accounts.

Dr. Bird, *Vice-President* and *Secretary*, having resigned these Offices, in consequence of his approaching departure for England, the Hon'ble J. P. Willoughby, was unanimously elected *Vice-President*, and H. J. Carter, Esq. *Secretary*.

It was then proposed by the *President*, seconded by Sir Erskine Perry, and resolved,—That the thanks of this Society be given to Dr. Bird, who has now resigned the Office of Secretary, which he has so ably and zealously filled for a period of three years, during which his scientific attainments and great knowledge of Indian Literature have proved highly beneficial to the Institution; and that the Society further express its regret at the loss of his valuable services in India, resting assured that, although removed from the scene of his labours, he will continue his exertions in the cause of Indian Literature and Science.

A letter from Dr. Buist, embodying certain propositions relative to the *Malcolmson Testimonial*, which had been previously circulated to the Managing Committee, was then submitted to the Meeting.—Resolved that the two first of Dr. Buist's propositions be adopted, viz.—

1st. That the subscription to the *Malcolmson Testimonial* be closed.

2nd. That one half the sum subscribed be devoted to the purchasing of *dies*, and of *ten silver medals* to be struck from them for distribution by the Society, with such devices and inscriptions as may be considered expedient; and that the details, as to the mode of distribution of the medals, be left for the future consideration of the Committee.

The following donations were presented:

Historical Researches on the Origin and Principles of the *Bauddha* and *Jaina Religions*, by the Author, J. Bird, Esq.

A Fac-simile of a Copper-plate Grant found in the vicinity of Ujein, dated *Samvat* 1036, A.D. 980. Presented by R. N. C. Hamilton, Esq. Resident at Indore.

The Society's thanks were voted for these donations, and the Meeting was adjourned to Thursday the 9th December, 1847.

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